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But It Only Accepts Microfilm

OCR Unit 'Learns' as It Reads Various Fonts

By Peter L. Briggs
CW Staff Writer

LEONIA, N.J. — An optical character reader capable of learning new characters or entire alphabets on-line has been announced and demonstrated by Compuscan, Inc. Marvin Weiss,

company president, told CW that the machine has been used as a production machine by the company's service division for the last few months.

The Model 370 carries a high price, about \$900,000, though this is by no means the highest

price for such OCR equipment. Among its abilities, some of which are not now available from any other company — the ability to accept any type of input or style of text, the ability to read several fonts (type styles) at the same time, the ability to

accept any special symbols, desired, the ability to read unformatted material without special programming, and the ability to scan graphical documents.

The demonstration included examples of all these capabilities and clearly indicated the flexibility of this device. Several different types of texts, representing catalog, magazine, textbook, and graphical formats, were successfully read, and unreadable characters were successfully identified on-line.

The company intends, says Weiss, to offer these capabilities through its service bureau. The existing machine, as well as the two others currently being produced and scheduled to be available within 90 days, are expected to be fully committed for the service operation. Production time, from scratch, is anticipated to be about six months for limited production assembly.

The unit requires that documents to be processed be recorded on microfilm, allowing the 370 to control resolution and contrast, according to Dr. Jacob

Millman, company vice-president and an expert in pattern recognition technology.

The 370 will read, from film, at an average speed of 400 char/sec. The range is from 100 char/sec to about 2,000 char/sec, depending on the size of the character set in memory. With a typical sophisticated text consisting of four fonts and three type sizes, the unit would be searching a total character set of perhaps 200-300 characters. With this character set, the unit would be operating at its 100 char/sec speed.

The system uses an 800-character expandable core memory coupled with an SDS Sigma 2 computer to remember the fonts and control formatting. Fonts may be stored on tape or entered from the console.

Unrecognizable characters may be displayed on a CRT and identified by the operator while the machine is reading the text. This identification can either be stored permanently or simply accepted and forgotten, at the user's option.

New 2314-Compatible Disk Drive Offers 32-msec Average Access

CUPERTINO, Calif. — A disk drive "fully compatible with IBM's 2314" features access times approximately half those of the 2314.

The ISS 714, from Information Storage Systems, Inc., has a claimed average access time of 32 msec, against 60 msec for the 2314-A1 and 75 msec for the older 2314 system.

The 714's minimum access time is stated to be 10 msec, with a maximum of 60 msec. Startup time of the ISS drive is said to be 1/3 that of the 2314.

The company, located at 10435 N. Tantau Ave., says that all the other standard comparative specifications are similar to the 2314: 29-million-byte capacity for one module, 312kHz peak transfer rate, same disk pack, and full data compatibility.

The 714 is priced at \$25,000, which appears to be very competitive with single modules of the full-size IBM system. The

eight-module-and-a-spare 2314-A1 sells for \$256,000, including control.

For the present, ISS is selling on the basis of the user providing his own control, but the firm plans to announce a control in the near future, a spokesman said.

Since this has the earmarks of a neoclassic two-vendor situation, CW asked IBM what it would do about maintenance. IBM stated that if the control (2841) were leased, and provided that the customer obtained "the standard safety elements" from IBM, IBM would maintain the hardware that it had provided. As far as purchased IBM equipment, standard maintenance contracts would be required.

The new unit is being marketed to the OEM trade by the manufacturer, with most end-user relationships being handled by Telex Corp.

First deliveries are scheduled in early October. The company is



ISS 714 disk drive

currently shipping the previously announced 701, a 2311-compatible disk drive, a spokesman said.

Black Trainees -- Part 1

Betty Completes Course, Can't Get Job

By Joseph Hanlon
CW Staff Writer

BOSTON — Betty, a black ghetto resident, is a high school graduate with several years of work experience. For nine months, she attended a computer training class two nights a week. During the course, Betty wrote three Cobol programs. In June, she graduated second in the class and began looking for a job as a programmer trainee.

Betty is still unemployed. After interviews with 17 companies, she had one job offer — as an operator trainee. Of the 11 people who were graduated with her, only one got a job through normal channels as a programmer trainee.

All 12 who finished the course are high school graduates and had at least taken algebra in high school. All have work experience in computer-related

areas such as keypunching. Several have some junior college or college background. But all are black and lack college degrees, and all but one had great difficulty finding a job.

The course began two years ago as a cooperative venture between Arthur D. Little (ADL), a Cambridge consulting firm, and Jobs Clearing House, an organization designed to get better jobs for ghetto residents.

Jobs Clearing House approached ADL with the suggestion that if ADL would train people, Jobs Clearing House would find them jobs. ADL offered free space and computer time, but made no commitment about hiring. ADL staff members volunteered as teachers.

Applicants were recruited through ads in the *Bay State Banner*, a black newspaper, and screened by Jobs Clearing

House. All were underemployed, not hard-core unemployed.

The purpose of the course was to bring people to a level at which they could get jobs as programmer trainees. The course met two nights a week for nine months. By the end, the students had written Cobol programs in business areas such as payroll and accounts receivable. "We hoped to better prepare them to compete in the scramble," explained one teacher. "We hoped they would have a leg up on others competing for jobs as junior programmers or programmer trainees."

They didn't.

Betty had interviews with 17 companies. With one insurance company that trains 120 programmers per year, she was interviewed by four people, including two in the data processing area.

(Continued on Page 4)

ACM's 1970 Conference To Focus on DP's Impact

NEW YORK — The 1970 national conference of the Association for Computing Machinery will represent the "culmination of a year's study of the projected impact of computers and computer technology in the 1970s."

Plans for the conference, to be held Sept. 1-3 at the New York Hilton Hotel, were approved by the ACM Council at its meeting in San Francisco.

Computer Professionals

Emphasis will be placed on assessing ways that computer professionals will meet the challenges of the '70s. Major objectives include: taking inventory of the state of the computing sciences; defining the utilization of computing technology in industry, government, and society; formulating an integrated plan for development and proper application of computer-based systems in the '70s; and assessing the impact of computer technology and applications upon society.

Position papers will be prepared by groups with special interests in specific areas such as transportation, engineering, finance, medicine, management, law, teaching, and pure science. Experts will contribute their viewpoints, and the summarized

result will be presented. Many societies have agreed to participate in this joint venture, each contributing from its own special field or background.

It is hoped that, with the active participation and interest of all those in the field who are concerned with the direction of computer technology and its effects on society, this concept will become a powerful working force for influencing the proper growth of the industry, according to ACM spokesmen.

Sam Matsa, IBM, is general conference chairman, and Robert W. Bemer, GE, is program chairman.

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Computerization Helps Firm Recover From Hurricane

PASS CHRISTIAN, Miss. — A garment factory struck by the lash of Hurricane Camille three weeks ago will be able to make its normal fall deliveries, thanks to the storage of all garment patterns on magnetic tape.

Damaged by the hurricane was Pass Christian Industries, a factory with 450 employees, operated by the Philip Rothenberg Co. of New York.

The company, maker of women's shirts and slacks, will be able to make fall deliveries by use of apparel manufacturing facilities in five plants in Mississippi, Arkansas, and North Carolina.

Textile manufacturers have promised to replace the fabrics that were destroyed, but more important in this salvage operation was the company's ability to get almost immediate delivery of the paper patterns that the storm made unusable.

The company, along with hundreds of other apparel manufacturers, now stores its patterns on magnetic tape, and they can be reproduced in a few hours. The tapes were on file with Compusize, Inc. of Leonia, N.J., a firm that provides computerized reproduction of a manufacturer's original patterns.

Operation Explained

Stanley Grossman, executive vice-president of Compusize, explained the process of pattern reproduction.

When a manufacturer sends in a pattern, he not only wants it stored for future reference, but also is primarily looking for "grading" of the pattern.

Patterns are usually cut from a designer's original garment, which is sized to fit the model or form from which it was taken.

If the original is size 10, then patterns must be cut for all the other sizes in garment range.

Many Cutouts Needed

When Compusize gets the original pattern, it is placed on a plotter, which traces the perimeter of the pattern and translates the shape into pairs of horizontal and vertical coordinates. This digital information is stored on magnetic tape.

The tape is then used to supply data to a pattern cutter, which guides a blade in cutting out the shape.

In addition to supplying the original pattern and all necessary sizes, the computer can also deliver a pattern on a miniature scale that would take up much

less storage space.

The cost for grading a typical dress style, including the grading of all the patterns involved in all sizes, would be around \$60.

The plotting board and cutting arm are products of the Gerber Scientific Instrument Co., Inc.

of South Windsor, Conn.

Lack of Graders

Pattern graders, those who do the work by hand rather than machine, are difficult to find. A technical school in New York graduated about six men last year, and the average age of all

graders is more than 60 years.

The lack of graders, according to Grossman, makes the computerizing of patterns a must and was also one of the reasons that foreign manufacturers who train their own graders have been able to gain a foothold in the market here.

New York-San Juan 'Hot Line' Is First of New Links

NEW YORK — A commercial version of the famed White House-to-Moscow "hot line" is being operated between New York and San Juan, P.R., by International Telephone and Telegraph Corp. It is expected to spread to Hawaii and then more slowly, as tariff negotiations

allow, to foreign areas.

The system can transmit voice, but its top speed of 4,800 bit/sec should make it more valuable for transmitting data.

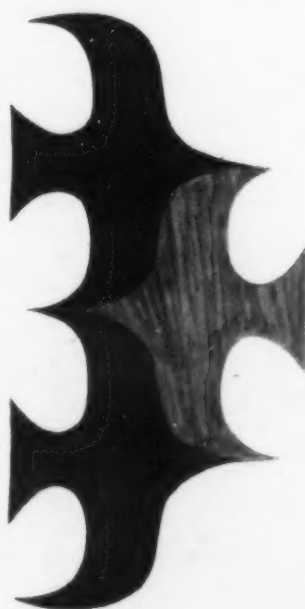
The link is essentially a pay-as-you-go (at 18 cents per six seconds) private voice-grade line between two master stations.

Each main point can be at the head of up to nine satellite stations, over which the master has go/no-go control. When the master at one end is picked up, the master at the other end automatically rings.

Costs are expected to be competitive with station-to-station

telephone rates, with the exception of not having a three-minute minimum.

ITT is charging a \$1,000-per-month minimum fee for the San Juan service. This works out to something over nine hours' use per month before true incremental rates are charged.



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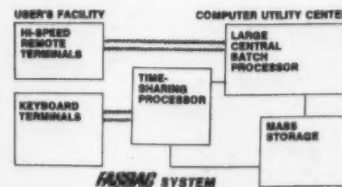
Through University Computing Company's new FASBAC service, scores of remote users can simultaneously utilize the full capability of a very large computer while retaining the quick response and "interactiveness" usually associated with time sharing.

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In addition FASBAC users have access to very large, low-cost bulk storage devices linked to the powerful computing systems at the UCC Computer Utility Centers. Files maintained in this storage can be shifted on command by remote users into the central computer for processing, or they can be used as the basis for a centralized remote query service. An important aspect of FASBAC is the hierarchy of processors used to perform various grades of processing assignments thereby in-

suring the most economic handling of a user's computing needs. Finally, the necessary tie up with FASBAC systems and the UCC Computer Utility centers can be achieved with virtually any or all of the low speed and high speed data terminals now in common use. Your becoming a FASBAC user can be as simple as placing a phone call.

FASBAC is an extraordinary achievement. It moves the age of mass computer usage a tremendous stride forward, by putting within the reach of the professional worker in remote locations the computing power he needs and can effectively use for the job at hand. With FASBAC, UCC can now offer an unmatched service, price-wise or performance-wise, to those who have need of effective on-site large scale computing power. For further information, simply write FASBAC, University Computing Company, P. O. Box 6171, Dallas, Texas 75222 or call (214) 741-5781.



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New and Largest Spectra, the 70/61, Designed Especially for Time-Sharing

MARLBORO, Mass. — The eighth and newest addition to the RCA Spectra 70 series, the 70/61, has raised many questions concerning its announced features and capabilities.

Although the system is described officially as being aimed at the time-sharing market, offering local and remote multiple access "to over 350 terminals," a company spokesman conceded that this figure represents the total terminals that probably could be connected to the system, and not the number that could operate concurrently.

The spokesman said that the 70/61 can support about 150 terminals concurrently, while the total simultaneous jobs that can be run on the system is 248. Presumably the remaining jobs would be assigned to related peripheral equipment.

RCA spokesmen stated that the 70/61 marks the introduction of a language, UL/1, thought to be derived from the term "user language." When asked whether the company felt

that the addition of still another programming language would affect current attempts toward standardization, they stated that UL/1 would not have a detrimental effect since it was designed "more to integrate than segregate" time-sharing operations.

The UL/1 language was said to enable small time-sharing users to combine communications, file management, and transaction processing routines for the first time with one language. A CW check of industry time-sharing experts indicated that such capability was not new and has been available on time-sharing and other systems for some time.

RCA said that the introduction of the 70/61 system offers the computer user a system that "is at least 18 months ahead of any comparable equipment." However, this claim is puzzling in view of company statements that the 70/61 will not be available for delivery until the first quarter of 1971. Does this mean that the company expects to

have an 18-month edge beginning now or in 1971?

The system is said to have a two-million byte virtual memory. But when asked to elaborate on this statement, spokesmen said that up to half, or one million bytes, would be committed to the operating system in a typical configuration.

The 70/61 is said to provide upgrade capability to present 70/46 time-sharing users, but when questioned on whether UL/1 had been operated successfully on the 70/61 system prototype at the RCA Cherry Hill, N.J., facilities, a company spokesman said he believed that thus far only existing 70/46 software had been run on the new system. Some industry sources viewed this as indicating that the 70/61 software is not yet operational.

The 70/61 operating system (OS61) offers a four-dimensional capacity for computer users, including batch, remote batch, interactive operations, and inter-terminal operations.

For professional programmers the system is said to offer on-line syntax-checking of Cobol, Fortran, and Basic source languages. An interactive debugging aid is said to provide up to 40% savings in program preparation. Source level language compatibility with the IBM 360 is a feature of both the Models 46 and 61 in the Spectra 70 series.

According to RCA, typical uses for the new system range from large-scale aerospace and manufacturing installations and service bureaus, to banking, utility, insurance, and government installations.

The Spectra 70/61 is intended primarily for users who require large-scale batch processing concurrent with a wide variety of user-oriented interactive facilities, particularly those requiring large numbers of remote terminals.

The system is modular in design, allowing for different mixes of workloads, either in batch, remote job entry, or interactive processing. The typical processor, comprising over 500,000 bytes of memory and having a cycle time of 765 nanoseconds, can be field-expanded in incre-



Prototype console of the Spectra 70/61

ments of 131K to over one million bytes.

The 70/61 can utilize two,

four, or six selector channels that operate simultaneously with high-speed peripherals.

SicCas Announces Goals, Plans Its First Meeting

BOSTON — The new ACM Special Interest Committee on Computers and Society (SicCas) will hold its first meeting Nov. 18, at 8 p.m. in Las Vegas during the Fall Joint Computer Conference.

A prime objective of SicCas will be to further "an understanding of how the structure and operation of society may be affected, positively or negatively, by the development and application of computers and automata," said Robert Bigelow, committee chairman.

Bigelow was appointed by ACM President Bernard Galler after formation of the committee was approved by the ACM Council Aug. 26. Bigelow, an attorney, was one of three members who worked to establish the committee.

The committee will work "in areas where the computer in the operation of society has or may have prime importance."

One immediate major project will be a newsletter under the editorship of Grenville R.S. Bing-

ham of MIT's Project Mac. Study committees are being established on data banks and privacy, on jobs and automation, and on education of noncomputer people about computers.

A liaison committee under M.H. Schwartz of the AEC has been set up to provide an interface with organizations outside ACM who have an interest in topics within the fields of the committee's interests, Bigelow said.

Under the ACM Constitution, special interest committees are established for a one-year period by council action, and, unless extended by the council, expire at the end of the year. A special interest group, whose establishment requires a petition by 100 full members of the association, is a self-supporting organization which does not need annual council action.

Persons interested in working with SicCas may write to Bigelow at 28 State St., Boston, Mass. 02109.

Firm Seeks an Injunction Against AT&T and IBM

By a CW Staff Writer

WASHINGTON, D.C. — Photo Magnetic Systems has taken the second step in its fight with IBM and AT&T over alleged infringement of Photo Magnetic's patent on a "Touch-Tone" data and command input system.

Photo Magnetic filed a \$2 billion suit in U.S. District Court against four alleged infringers — AT&T, IBM, Chesapeake & Potomac Telephone Co., and Western Electric Co., Inc.

The suit asks for compensatory damages of \$1 billion and punitive damages of \$1 billion.

The company also asks for an injunction against continued infringement that could, if granted, stop nearly all use of tone-generating equipment used to input data and commands to a computer. A Photo Magnetic spokesman estimated the injunction issue would be decided within two to six months.

Previously, Photo Magnetics notified both AT&T and IBM by letter of the alleged patent infringement. The two firms at that time took a position that there was no validity to the claim. They are maintaining that view.

The suit claims IBM is manufacturing, leasing, selling, maintaining, and operating IBM 026/5 keypunches and IBM 7770 audio response units, among other related devices, in violation of the patent.

AT&T and Western Electric are manufacturing, using, and selling push-button tone-generating telephone sets, data phones, "tone-to-digital converters and visual displays, i.e. picture-phone," that are alleged violations.

Chesapeake & Potomac is charged merely with selling and using equipment covered in the patent.

Betty Completes Course, Can't Get Job

(Continued from Page 1)

ing department. At the end, she was not hired. The reason they gave her: Her husband was employed by a company that was moving a few miles out of town, and even though her husband's division was not moving, she would be a bad job risk because her husband might have to move.

Velma worked as a keypunch operator for another insurance company. She ranked third in the class and had taken courses at Northeastern University. She applied to her own company for a promotion to programmer trainee. "I got a run-around," she declared. Finally after two months, the company offered her a job as a programmer trainee, she reported, but they

asked her to take a salary lower than the one normally paid to programmer trainees. Finally, in August, she was hired by ADL. When she handed in her resignation, she said, the insurance company immediately offered her the same salary it paid to other programmer trainees.

"Did you have trouble because you are black?" Betty and Velma were asked. Their replies were identical: "When I started out, I didn't feel that way. But when they give you idiotic excuses, you really begin to feel that way. And being a woman didn't help."

In two years, 22 black people have graduated from the course. Last year 10 graduated; five were placed. This year, 12 graduated. The top student was hired

immediately by Stop and Shop. Two others were hired in August by one of their teachers at ADL, even though ADL had made no advance commitment to hire. The others are still in their old jobs or are unemployed.

"It was naive of us to teach them a course and assume they would be hired," commented Chuck Martin, the course organizer. "It was futile and very frustrating."

This fall, the course will not be given.

CW talked to several of the people who refused to hire course graduates, as well as to a few who hired them, to find out why the graduates could not get jobs. Some answers will be considered in the two remaining parts of this series.



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BPA Membership Applied For

Official Denies Bias in Favor of IBM

State Accused of Irregularity in Selecting Computers

DENVER, Colo. — Charges of bias and irregularity in the selection of computers for state service were denied last week by Colorado's chief administrative officer.

GE, Honeywell, and Univac officials have charged publicly that the state is not following official procedures established for the selection of data processing equipment and that the state is biased in favor of IBM. Three other competitors of IBM have made the same charges privately. IBM is the state's chief supplier of computer equipment.

Dr. E.W. Sandberg, director of administration and deputy governor, denied the charges and

suggested communication problems and differing interpretations of written state policy as possible explanations of the misunderstanding.

Letter of Intent

A focal point in the controversy is a "letter of intent" which Sandberg sent to IBM July 19, authorizing IBM to "place on order" a 360/50 to replace an existing 360/40 in the state's revenue department, and an additional 64K of core memory for a 360/50 in the central data processing department.

IBM's competitors complain that they were not informed that the letter was sent, and were not even aware of the state's intention to procure the additional equipment. The vendors feel that this action, as well as others on the part of the state, are in violation of an executive order issued by Gov. John Love in October, 1966, which makes it state policy "to afford all qualified vendors the opportunity to present proposals for automated data processing installations and to require that evaluations be made by skilled and experienced personnel utilizing objective guidelines." The order demands further that "formal notification shall be given to ADP (automated data processing) manufacturers to eliminate misunderstandings by them with respect to selection procedures and commitments by the state."

Not a Firm Order

Sandberg told CW that the letter does not amount to a firm order to lease the equipment from IBM, and that it can be cancelled at any time. The letter was sent only to guarantee that the state could obtain the equipment when needed if the decision were made to order it, he said.

The suggestion to procure additional equipment for the revenue department was made during a federally financed study involving the Colorado Bureau of Investigation (CBI). The study has led to the decision to implement a computerized law enforcement information system. Full-time, 24-hour-a-day opera-

tion would demand the reliability of a duplex computer system with backup capabilities, Sandberg said. The state has already decided to combine the facilities of the revenue department and the central data processing department for the twin central processor system.

Open Bidding

Sandberg's letter of intent to IBM followed a July proposal by the study group to "convert within the existing system." However, the decision to do so is by no means final, Sandberg

said. Only after the complete requirements for terminal equipment are known can the decision be made whether to upgrade the present computer systems or to consider a new system, he said.

If the state decides to consider a change in the entire system, then open bidding according to the executive order would certainly prevail, Sandberg said. This matter would be resolved within 30 to 60 days, he said, and a meeting will be held later this month to inform all vendors of the status of the question.

On the problem of communi-

cating with vendors in general, Sandberg said, "I don't think we have really done as good a job as we could in communicating with these people." Sandberg said that he holds meetings with vendors "practically every week," and that he is committed to the goal of giving vendors "better information and better opportunities" to explain their offerings, but stressed that it was up to the vendors to take the initiative and do the "creative work" of preparing proposals for systems suitable for needs of the state.

Association Plans Full DP Services For Restaurants

COLUMBUS, Ohio — The Ohio State Restaurant Association plans a statewide data processing food service that will perform functions ranging from planning menus to grading waitresses on their salesmanship.

Details of the service are expected to be announced during the three-day 50th annual convention of the OSRA to be held here Sept. 30.

The data processing food service will suggest menus, prices, and portion sizes; analyze food recipes and inventories; compare the sales of various menu items; and even grade waitresses on generating sales.

Al Heinichen, chairman of the OSRA computer study committee that planned the service, says that computerization is necessary to support food service operators of all sizes of restaurants in decision-making in the modern, highly competitive world.

"Too many of them still run their operations the same way they did 20 years ago," Heinichen said.

The association already provides computer aid in site selections for its members, and the system has proved 93% efficient and correct, Heinichen added.

Records of Stock Brokerage Employees To Be Checked via Criminal Data Bank

NEW YORK — Stock brokerage house employees are being checked through New York State's computerized criminal data bank.

Under a new law, everyone, including partners and officers, who works for a brokerage house or securities clearing house will have to be fingerprinted. The fingerprints will be submitted to the office of State Attorney General Louis J. Lefkowitz, where they will be processed. Then they will be checked through Nysis (New York State Intelligence and Information Service). If the person has a criminal record, Nysis will send a "rap sheet" to Lefkowitz' office, which will then make a recommendation to the firm involved.

The recommendation is not binding, but if the employer does not follow the recommendation, the attorney general can bring formal action under the state's securities laws.

'Matter of Judgment'

According to Lefkowitz, no specific criteria will be set for determining which employees should be barred. "It's a matter of judgment," he said. "I'm go-

ing to be human about it."

When it is completed, Nysis will contain the criminal records of 1.5-million people (the population of New York State is 17 million). So far, 100,000 records have been put on disk, and 600,000 are in machine-readable form. The records contain information on arrests, court action, etc., and are keyed to fingerprints, as well as other identifiers.

All criminal records from the state are being included. According to Adam D'Alessandro, deputy director for systems development and operation for Nysis, criminal records in the system go back to the 1920s, and no attempt has been made to purge old records from the system.

One of the major purposes of the new fingerprinting law was to check for Mafia influences on Wall Street. But it is not clear how much help the check will provide in that area.

Plans call for Nysis to contain a crime intelligence file. Various police agencies would pool their files on persons suspected of being involved in various organized crime. But the first pilot

project is not expected to begin operation until next year, and it will be very limited, according to D'Alessandro.

Furthermore, there is some question as to whether agencies will allow their Mafia data to be included. In his book, *The Death of Privacy*, Dr. Jerry M. Rosenberg quoted an unnamed state official who said: "I just don't know whether Hogan [Manhattan district attorney] is going to let Nysis see the sensitive kind of stuff he's got in his files, especially when there's a possibility it might fall into the hands of a corrupt sheriff or police chief at the other end of the state."

State officials are very close-mouthed about the use of data from the crime intelligence file in relation to Wall Street employees. D'Alessandro refused to say whether information from intelligence files would be included on the "rap sheets" sent to the attorney general's office. He did suggest that such information might be sent to a local law enforcement agency.

Lefkowitz said that his office had not yet considered procedures for handling such information.

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Drop the Terminals on the Floor: The Company Does

WHITE PLAINS, N.Y. — The manufacturer of two new input terminals says they are so rugged that they can be dropped on the floor with no ill effects.

The new units feature low cost, easy use, and portability. The devices are fully compatible with standard 12-key, Touch-Tone phones and can produce 26 letters, 10 numeric digits, and four punctuation marks.

FT-1241 is priced below \$200 by its manufacturer, Metro-processing Corp. of America. It handles computer systems having 401-J data sets, as well as the more standard 403-D/E modems.

The FT-1248 is designed to allow several people at a time to hear a computer's audio response, through a built-in inductively coupled amplifier and speaker.

An option allows slip-on pick-up for the receiver, for use in areas in which telephones have shielded response units.

The company, located at 64 Prospect St., says that both units slip over any telephone handset manufactured in this country since 1940. Both new models are self-contained and battery-powered, with no requirement for an outside source of electricity.

Printer Terminal

PHILADELPHIA — A new, low-cost asynchronous I/O communications printer terminal has been announced by Univac.

The DCT-500 data communication terminal is a free-standing, ASCII-compatible system.

It consists of an advanced 132-column printer mechanism, a control unit, and a keyboard. The terminal operates in full or duplex mode at optional speeds of 10, 15, or 30 char/sec, offering two to three times greater

New Products

throughput than conventional teletypewriter terminals at comparable prices, the company says.

It is available to both users and original equipment manufacturers.

Applications for the DCT 500 include use in time-sharing systems, management information systems, point-to-point business data exchange, and others.

For applications requiring receive-only capability, the DCT-500 is offered without keyboard. It may be converted to an ASR (automatic send/receive) device through the addition of an optional 30 char/sec paper-tape reader/punch subsystem.

The new unit will be available with keyboard at less than \$100 per month including maintenance, or about \$3,400 for outright purchase.

A built-in 300 baud modem can be provided for an additional \$10 per month. Initial deliveries are planned for the spring of 1970.

The DCT-500 is designed to require little or no changes to software handlers for existing teletypewriter equipment in point-to-point communications networks. It is offered for all standard Univac systems including the Univac 1108 and Univac 9000 Series.

Data Entry System

FORT LAUDERDALE, Fla. — Keytran is the name of a new multistation key-to-disk-to-tape data entry system that is said to have "the most comprehensive

data-entry application software and error-checking package in the industry."

The manufacturer, Systems Engineering Laboratories, has designed the system around their 810B computer, a 16-bit machine. It can control up to 48 keyboard stations—pooling their output for later batch transcription to magnetic tape.

Software includes the ability to transfer batches from disk to tape without interrupting data entry, in-line insertion, dynamic allocation of disk space, zero balancing of up to five fields, check digit calculation, and selective verification, the company says.

Keytran is designed for users of eight or more keypunch stations.

A system including the basic 8K computer, supervisory console with Selectric typewriter, a 3-million-byte disk, a 9-track tape unit and controller, and 16 keyboard terminals is priced at \$117,500 or can be leased for \$3,435 per month. Deliveries begin in January, 1970.

The company, located at 6901 W. Sunrise Blvd., says that applications include order entry, production and inventory control, payroll, billing, mailing list update, and insurance claims.

Control Unit

DEER PARK, N.Y. — A buffered control unit for the IBM 2311 disk storage unit and 2311-compatible disk drives of other manufacturers is available from BCD Computing Corp.

Designated the Model D 082, the unit provides a minimum software controller while preserving complete IBM compatibility.

Disk packs written on IBM equipment can be read into a computer equipped with the D 082, and the unit can also

write disks for use on similar equipment.

The device can be obtained for use with up to eight 2311s and is field-expandable. It is priced at \$20,000.

The company says it has developed the hardware for buffering, compatible control of the 2311, and computer interface; and reportedly the hardware requires only minor customizing.

The buffered control unit can be used in any block-transfer computer input-output mode. One of the configurations utilizes the disk file in the same manner as a magnetic tape transport, therefore allowing standard magnetic tape software to operate with the 2311 disk storage unit.

Company offices are at 100 E. Industrial Ct.

Acoustic Couplers

MONTEREY PARK, Calif. — Four new acoustic couplers feature transmission rates from 300 to 1800 bit/sec and the ability to use various standard types of I/O devices.

The manufacturer, Multitech Data Products, says that its Model 440/MP can use teletypewriter Models 25, 33, 35, and 37; IBM Selectric; or IBM 2741 terminals.

The rate is 300 bit/sec, using either full- or half-duplex mode. 440/MP is priced at \$610.

Model 440/MQ is a 600 bit/sec unit that provides full-duplex communications over a standard voice-grade line. While it is generally compatible with Bell Data Set 103A, the company recommends minor changes. It costs \$635.

Multitech, located at 583 Monterey Pass, says that Model 440/MR can handle Inktron printers at 1050 or 1200 bit/sec



Input Terminal



Data Entry System



Printer Terminal



Acoustic Coupler

and other EIA specification equipment at up to 1200 bit/sec. It costs \$825.

Model 440/MS is the 1800 bit/sec unit that interfaces with the Bell 202D data set or with a Multitech-manufactured set. It is priced at \$825.

All four models are small, weighing five pounds each, with their own self-contained power source. Delivery is currently quoted at 90 days.

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Editorials

New Look for ACM Shows

"The best uses of computers in the '70s" is the theme of the ACM's 1970 national conference.

Instead of presenting technical sessions devoted to the nuts and bolts of specific uses, the ACM will give people with special backgrounds a chance to discuss future applications of computers in specific areas, such as transportation.

By presenting the best possible guesses as to what is coming over the next 10 years in computer applications and their effects upon society and business, the ACM has taken a large step toward giving users and potential users a chance to adjust, in advance, to the upheavals that computers seem to make inevitable.

Credit for this new approach to ACM conferences belongs to Sam Matsa, the general chairman, and Robert Berner, the program chairman. We congratulate them.

Witch Hunts and Computers

In order to check for Mafia and other criminal infiltration on Wall Street, employees of brokerage houses are being fingerprinted and their fingerprints checked against New York State's criminal data bank. Records in the bank go back 50 years and will include not only convictions, but arrests and "intelligence."

Based on this collection of fact and hearsay, the state attorney general will recommend to employers whether the person should be retained. There is no set procedure, according to Attorney General Lefkowitz, "It's just a matter of judgment."

Lefkowitz said, "I'm going to be human about it." And that's exactly the trouble. Will personal and political interests be considered? If an arrest led to acquittal rather than conviction, will it still be viewed with suspicion? Will the accused have a right to a hearing and the right to confront his accusers? Or will the attorney general's office hold up a printout and declare, "The computer says so, how can you question it?"

The state will argue that its information is confidential and should not be disclosed; that sources must be protected. Will the result be a quiet phone call to a brokerage house, followed by an employee being dropped "for doing a poor job"?

During the witch hunts of the '50s, many people were refused security clearance based on hearsay evidence. They had no right to confront their accusers and frequently had no real hearings.

Is the computer to become part of a witch hunt on Wall Street?



"Internal Safeguards? Who Needs Them?"

Letters to the Editor

Two-Foot-Thick Printout Called 'Depressive' by User

I'm sure that Amex's computer complex is more sophisticated than might be assumed by a casual reader of the article on their Transaction Journal in the Aug. 20 issue. One could get the impression that employees daily wade through a two-foot-thick printout.

I know nothing about the Amex system, but I feel sure that this journal is for record purposes primarily and is never reviewed, except in the case of lack of compliance.

The article does mention an hourly printout for the stock watch personnel, and I presume that this is the sort of "exception reporting" activity which should be utilized in this instance.

Any article about a two-foot-thick stack of computer printout may be impressive to the lay public, but can only be depressive to the computer-sophisticated readers to whom your excellent newsworthy is directed.

T. H. Maguire, Jr.
President

T. H. Maguire & Assoc.
Weston, Conn.

We agree that too often detailed printouts are provided when a much slimmer exception report would be more useful. However, in this case, exchange personnel do utilize the journal daily in their analysis and evaluation of the previous day or days' trading. Ed.

Software Developer Clarifies Package Performance Claims

I enjoyed reading your article about Byte Fortran [CW, Aug. 20].

[But] I would not flatly state that programs written with Byte Fortran will run about four times as fast as with 360 Fortran, since this is not always true, and is in part a function of the program application. However, recent benchmark tests showed results where the increase in throughput ranged from 22% for very simple tasks, up to improvements by a factor of greater than 4 for tasks of slightly greater complexity. With appropriate program design, still greater improvements are possible.

The efficiency of data handling of Byte Fortran is not due to any superiority of 1130 Fortran over 360 Fortran, at least in this respect. Rather this efficiency is a function of Byte Fortran itself, operating with 360 Fortran in a System/360 environment. Nor is it the 1130 commercial subroutine package which is included in Byte Fortran.

But functions comparable to those provided on the 1130 by the commercial subroutine package are made available, with important differences, by Byte Fortran on System/360.

While Byte Fortran will create a compatible environment for 1130 Fortran programs on a System/360, the multipurpose capability of the package is made available using the standard 360 Fortran language.

I certainly do agree with you that 1130 Fortran would appear to have some advantages over 360 Fortran, but then, Byte Fortran remedies and overcomes precisely this situation.

David Turetsky
President

David Turetsky Assoc.
New York

Left Zero Insertion Feature Defended as More Economical

I am writing in reference to Mario P. D'Ambrosio's letter regarding left-justified data fields [CW, Aug. 20].

I feel if Mr. D'Ambrosio would study the economics involved in his statement, he would reconsider his position. This technique obviously takes more processing time, core, and programming time (three commodities very few users can afford to waste). A keypunch with left zero insertion will accomplish the same thing with much less trouble and cost.

Scott Van Derhei
Data Processing Manager

Wisconsin Finance Corp.
Shawano, Wis.

360/30 Multiprocessing

While we don't think there would be much reader interest in the publication of any more letters about our Aug. 6 story, "360/30 Partitioned for Multiprocessing," we would like to acknowledge that the following installations also have reported using the Model 30 in this manner:

Dean R. Cannon, manager, system development, medical systems division, Latter-day Saints Hospitals, Salt Lake City, Utah.

Charles W. Recktenwald, communications analyst, Borg-Warner Corp., Chicago.

R.A. Crenshaw, data processing director, Hillcrest Medical Center, Tulsa, Okla.

Capt. C.J. Beddome, data processing officer, Arizona Public Safety Department, Arizona Highway Patrol, Phoenix.

Data Communications--Part IV

Are Rates Discriminatory to Computer Data Users?

By Ronald A. Frank

CW Staff Writer

In August the Bell Telephone Co. of Ohio set a precedent of great importance to users whose telephone lines are connected directly to a computer.

As part of a request for a general rate increase totaling \$80 million, Ohio Bell reclassified intrastate lines terminating at a computer, designating them as Information Systems Access Lines (ISAL).

In explaining the move, Bell stated that computer time-sharing users and others with high-volume business lines connected to computers were using their facilities much more than other businesses. In telephone company terminology, the computer-linked lines had much longer holding times.

All important in this move was the fact that Bell customers using the newly designated ISAL lines were faced with proposed rate increases.

In one case, a large time-sharing user who had been paying \$8 per month for a line in a large Ohio city now is charged \$24 per month for the same facilities.

Discussing the new charges, a time-sharing company officer told CW that the \$24 monthly rate was designated as a special assemblage provision by Ohio Bell. He added that upon approval of the reclassification by the Public Utilities Commission, the phone company planned to raise the charge still higher to \$37.

"No matter how you look at it, this amounts to an increase of more than 400% without any corresponding changes in lines or service," he said.

In explaining the reclassification, an Ohio Bell spokesman outlined the criteria used to establish the new interim rates.

"What we did was look at the rates being charged to high-volume business customers. These were firms in high-density business districts with in-house PBX (switchboard) equipment," the spokesman said.

He said that identical rates were then levied on business lines directly connected to computers, because "these lines have considerably longer holding times."

When asked whether the ISAL designation was limited to computer-connected lines, the Ohio Bell spokesman said that any data user with high-volume holding times on business PBX lines was considered by the company to be an "information source" and thus liable to the new classification.

When asked to give an example of a noncomputer ISAL user, the spokesman said that any line with high-volume "voice or tape-recorded transmission" would fall into this category.

To illustrate the point, the spokesman said a college professor who gave a lecture, by means of data lines, to students at one or more remote locations would probably be using an ISAL line.

In setting the new designation, Ohio Bell is invoking special assemblage provisions of its intrastate tariffs, which allow the company to set interim classifications and rates for special situations not covered in existing authorizations.

Under these provisions, the ISAL charges are presently being levied on an interim basis pending final approval as a tariff by

the Ohio Public Utilities Commission.

However, in the case of the ISAL rate requests, this approval may turn out to be considerably more than a formality.

Users levied with the new ISAL charges claim that the classification is discriminatory in nature and have vowed to contest the issue in hearings to be held by the PUC.

In discussing the ISAL question, Bernard A. Frohman, manager for rates and tariffs with the Ohio PUC, stated that Ohio Bell would have to prove that the rates are justified.

"As with any proposed tariff, the company will have to provide detailed inventory and appraisals, including full operating statements in order for the commission to determine whether these rates are justified," Frohman stated.

Apparently the Ohio Bell situation will mark the first time that

a new designation of the ISAL type has been contested by users, according to an AT&T spokesman.

According to this source, familiar with the ISAL situation on a nationwide basis, a similar line designation has been approved by regulatory agencies in the Southwestern Bell states of Texas, Kansas, and Arkansas. Additionally the state of Utah, covered by Mountain Bell, has had a similar tariff approved. Apparently none of these tariffs was contested by affected customers.

Although the Ohio ISAL designation is based on volume of usage or holding times, the AT&T spokesman stated that the criteria used by individual Bell companies could differ.

Apparently the ISAL designation (and even the exact name can differ from state to state) is based on an AT&T study begun about three years ago, which

showed that high-volume users tend to put greater demands not only on available equipment, but also on existing central office and network switching facilities.

Using this type of guideline, AT&T suggested to individual companies forming the nationwide Bell System that each determine ways to charge proportionate rates to those users making greater demands on the telephone system.

With this type of guideline being applied, computer users will presumably be affected regardless of the criteria being used.

At present, the Ohio PUC is carefully exploring background material connected with the Ohio Bell ISAL proposals. At least one large time-sharing intrastate line user will challenge the proposals at PUC hearings.

The hearings will be watched with interest by computer users across the country.



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Irate Data Victim Favors Water-Logged Computers

Public resentment of computers grows louder daily, as illustrated by this letter to the editor which appeared in the Indianapolis Star on Aug. 23 under the headline "Ditch Computers and Use Brains, Colonel Declares."

To the Editor of The Star:

What a laugh. The computer people have some dillies out in the magazines and newspapers, as follows: "If General Custer had this computer, he would have beaten the Indians." Maybe he could have beaten the Cleveland Indians. Another computer advertisement says that if "Wall Street had had this computer in 1929 there would not have been a Black Tuesday when the stock market crashed." What malarkey! Computers have fouled up everything. If you don't believe it listen to this. In the last

35 days, computers messed up my checking account at the bank. I have two gasoline credit cards and the computers fouled both of these up. I sent in a beneficiary change on a life insurance policy and it just got back. The computer of the company took six months to change a simple beneficiary. And if you still are not convinced listen to this. Here in Indianapolis, the computer for a local insurance company sent out premium due notices on two policies for five years after they were paid up. What to do? Throw all the computers in the Atlantic and Pacific oceans and have people start using the brains God gave them instead of these "booby hatch" computers.

Col. Walt Charlesworth

6026 Sunwood Drive
Indianapolis

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Application Deadline Nov. 1**CDP Exam Will Be Held Feb. 14**

CHICAGO — Two significant changes will affect the 1970 Certificate in Data Processing examination, which will be given Feb. 14, 1970, at Data Processing Management Association's International Headquarters, Park Ridge, Ill.

The changes are the expansion of the CDP examination by the addition of a fifth section on the principles of management and the installation of revised administrative procedures at DPMA International Headquarters that will require applications to be postmarked on or before Nov. 1 in order to be eligible for consideration for the exam.

Expansion of the examination also involved an increase in the

number of questions in each of the existing sections.

The five areas to be covered in the exam are:

1. Data Processing Equipment
2. Computer Programming and Software
3. Principles of Management
4. Quantitative Methods
5. Systems Analysis and Design.

In DPMA's monthly magazine, *Data Management*, it is stated that a plan of preparation for the examination is the CDP Review Course, sponsored by DPMA chapters and conducted by members of the chapter.

The courses are structured, classroom lecture-discussion sessions scheduled over a set period of time.

The courses are conceived and implemented at the local level, usually with the aid of a CDP ambassador who is a CDP holder.

In no way are the review sessions controlled by DPMA International Headquarters.

Due to the firm deadline date of Nov. 1, chapters are urged to initiate the CDP review courses early to allow ample time for those who wish to attend a few sessions before submitting an application for the exam.

The Certificate in Data Processing Examination Announcement and Study Guide and the application and test-site list may be obtained from DPMA International Headquarters, CDP Section, Education Dept., 505 Busse Highway, Park Ridge, Ill.



COMPUTERWORLD

education**450 Teachers Are Learning New Math by Mobile CAI**

CHARLESTON, W. Va. — An unusual experiment in American education is being conducted in the heart of Appalachia.

A total of 450 elementary school teachers in two states are being instructed in the "new math" during a six-month computer-based project.

IBM 1500 instructional systems are being transported for eight weeks at a time to three

different Appalachian areas of Virginia and Pennsylvania for the undertaking.

Based at the headquarters here of Appalachia Educational Laboratory (AEL), the program aims to train 75 teachers per month in the new math.

The AEL program represents a cooperative effort between Pennsylvania State University and three groups of school districts in Virginia and Pennsylvania. Its \$155,000 cost is being borne by the school districts.

The schedule calls for eight-week stops in or near schools in three communities, during which teachers from the area are given an average of 30 hours of instruction.

This includes 25 hours of review in new math and five hours on how best to teach it — the latter being interspersed throughout the review segment.

The IBM 1500 instructional system consists of a display unit with a typewriter keyboard; a light pen that the student uses to indicate his answers on the screen; and an image projector on which is mounted another screen for the showing of color or black and white images.

Sixteen instructional stations are used, at which students receive individualized instruction.

Course material, stored on magnetic disk packs, is geared to the individual student rather than the class norm. In the event a student is encountering difficulty in some area, the 1500 is programmed to detect the difficulty and suggest one of several solutions.

For example, in the event the student teacher arrives at a wrong answer in adding two numbers, he is informed by the system of his problem and asked to try again.

If he continues to have difficulty, the computer advises him to call it a day, refers him to other text material, or offers some similar remedy for his apparent inability to find right answers. In some cases, a proctor is called over to assist.

Present at each location are a systems manager and computer operator — both specialists provided by Penn State as part of its subcontract with AEL. They are in charge of the operation at each site.

Student records and course revisions are stored on magnetic tape and transmitted over telephone lines to Penn State. There, the material is evaluated by an IBM 360/75 located in the university's computer center.

This particular form of computer-assisted instruction is the brainchild of Dr. Harold Mitzel, assistant dean of research at the university, who is responsible for the new math course and operation of the system. His responsibility includes supplying the personnel for the operation.

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The key elements of CONVERT-A-CODE are a series of powerful translator programs and an extensive staff of conversion specialists. This combination of software and people guarantees users of the service a 100% conversion to System/360.

We will take your 1400 programs (object or source) and return to you standard 360 source assembly language programs, debugged, fully tested, ready to go on the air. DOS, OS, TOS or BPS.

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The service has been successfully used by major insurance companies, banks, brokerage firms, manufacturing companies, and major service bureaus throughout the United States.

Satisfied users include Firemen's Fund Insurance Co., Crown Central Petroleum, FMC Corporation, Connecticut Savings Bank, James Talcott, Inc., Loeb-Rhodes, Tracor Computer Corporation, and the largest service bureau corporation in the United States, among others.

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Lowest cost per program to convert. Our clients have compared CONVERT-A-CODE costs with the in-house manual approach and the in-house package translator approach, and found CONVERT-A-CODE to be far and away the lowest in cost per program. In addition, the CONVERT-A-CODE charges are total costs including all documentation and computer test time.

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Turnaround time to complete the conversion. Because of the power and effectiveness of our translator and the skill of the team of conversion specialists who complete the work, CONVERT-A-CODE is equipped to handle large volumes of programs in a very short time.

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Our new high-capacity drive carries a hefty 20-surface disk pack and offers up to 18.4 million characters of storage. Average seek time is a speedy 50 milli-

seconds, or 50% faster than the industry standard.

Our big-system, nine-spindle drives go all the way to 280 million characters, with a transfer rate of 416,000 characters per second. A lot of capacity, with a sensible price tag.

And if you need drums or disk files, we're strong here, too.

So challenge us with your most demanding direct access requirements.

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The Other Computer Company:
Honeywell

Decus Adds 2 Topics to Fall Program

MAYNARD, Mass. — The Digital Equipment Computer Users Society, Decus, has added two topics, Analytical Instrumentation and Astronomy and Space, to its technical session program for the 1969 fall meeting.

Held in conjunction with the Fall Joint Computer Conference, the Decus meeting will take place in Las Vegas, Nov. 17 and 18, at the Flamingo Hotel.

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In addition to the new topics, technical sessions will cover Interactive Computer Systems, Computer Graphics, Education, Physics, and a series of papers in biomedicine, covering computers in clinical medicine and in life-science research.

The semiannual meetings are now open to the public.

NCR Century Users Form Organization

HOUSTON — A group called NCR Century System Users' Group was formed recently for

the benefit of all users of the Century 100 and 200.

The organization will enable NCR users to discuss system capabilities, problems, and experience gained during system development.

In addition, NCR users may make unified recommendations to NCR for hardware and software changes that would enhance the system.

The group's representative is R.E. Davis, Automated Systems Corp., Houston Natural Gas Bldg., 1200 Travis St., Houston, Texas 77002.



COMPUTERWORLD

Societies

ACM Retains the Ceiling On Council Expenditures

SAN FRANCISCO — Association for Computing Machinery members have completed voting on a group of proposed constitutional amendments, it was

reported at the ACM Council meeting held here during the '69 conference.

The amendment that would have permitted the removal of the ceiling from Council-authorized expenditures beyond \$25,000 over budgeted amounts was defeated by a vote of 4,303 to 3,420.

Other amendments voted on by mail were: to include the "development of skills of individuals" as part of the ACM purposes (passed 7,367 to 393); to stagger the terms of ACM Council members (passed 7,570 to 225); to have council appointments of replacement members apply only until the next membership vote (passed 7,499 to 257); and to use percentages of current membership rather than fixed numbers of names in setting the requirements for submitting petitions (passed 7,193 to 590).

Also, new procedures for submitting constitutional amendments to the membership and the renumbering of the articles of the constitution and bylaws were approved 7,454 to 292.

The response to the amendment votes was noted to be about 30% of the membership.

Council Money Control

"How can the membership retain any idea of the scope of operations planned, or the extent of financial problems, if the council can spend unlimited amounts of money without explaining to the membership why the original budget was inadequate?" asked one concerned observer.

He pointed out that the defeat of this amendment signified a distinct interest, on the part of the membership, in financial control and financial awareness within the ACM.

Though the recent financial crisis is nearly passed, on paper, the membership still seems to feel real concern for the problems raised during the crisis, he said.

Automation and Society To Be ISA Keynote Topic

HOUSTON — Charles F. Jones, president of Humble Oil & Refining Co., will deliver the keynote address at the opening session of the 24th annual Instrument Society of America Conference, Oct. 27-30, at the Astrotrohall.

His address will concern the relationship of automation and other technical advances to the individual and the society.

The conference will feature almost 200 technical presentations. Available exhibit space already has been sold out, according to the association.

The group has also announced that Douglas C. Strain, president of Electro Scientific Industries, Inc., Portland, Ore., has been nominated president-elect secretary of the ISA for 1969-70.

Sneak a GE time-sharing terminal in your boss' office tonight.

You just may get a raise in the morning.



Surreptitious, it may be. So make your point with simple economics: a General Electric time-sharing system can save him a lot of money. You know time-sharing is inevitable. So get your own system sooner by selling the boss. Show him what it can do to improve his own productivity... how it can sharpen his management skills. How he can learn to use the BASIC* language in two hours or so.

Tell him how engineers and other problem solvers have increased their productivity some 50 to 500 percent. That's all money in the bank. You can start out as small as you like. Get the single terminal. Then add more. Soon, economics will demand your own system. With General Electric, you can choose from any of eight time-sharing computers. You can grow easily with no reprogramming because all software within each line is fully upward compatible.

Any of the eight systems can handle batch processing as well. Essentially, you're getting two computers for the price of one. The boss surely will be interested in that.

No wonder more time-sharing is done on General Electric computers than on any other kind. Your nearest General Electric Information Systems Sales Representative has all the details. Or write: Section 290-40, General Electric, 1 River Road, Schenectady, New York 12305.

Some of the most progressive people in the world choose GE computers

GENERAL ELECTRIC

*Developed by Dartmouth College on GE equipment

September 17, 1969

Page 13

CPM Program Helps Schedule Construction of Homes

CONTINUATION OF HOUSE 12 0208 PULTE MICHIGAN JULY 16, 1969

1ST NODE	2ND NODE	DESCRIPTION	DURATION	SUBCON- TRACTOR	COMPLETION DATE	FLY	EARLIEST START	EARLIEST FINISH	LATEST START	LATEST FINISH	ES	EF
192	284	PAY B RECEIVE	5	1	46	7/30/69	8/7/69	10/7/69	10/7/69	10/10/69		
193	284	PAY C RECEIVE	5	1	43	8/4/69	8/11/69	10/7/69	10/7/69	10/10/69		
CONST CHARGE												
194	195	REQUEST PAY D	1	1	27	8/25/69	8/26/69	10/7/69	10/7/69	10/3/69		
195	284	PAY D RECEIVE	5	1	27	8/26/69	9/7/69	10/7/69	10/7/69	10/10/69		
202	206	INSTL FLOORING	2	8	0	8/26/69	8/28/69	8/26/69	8/26/69	8/28/69		
206	209	INSTL TILE WORK	3	223	1	8/28/69	9/7/69	8/29/69	8/29/69	9/7/69		
207	210	DELAY TIME D	0	1	0	8/28/69	8/28/69	8/28/69	8/28/69	8/28/69		
208	211	INSTL REGISTERS	1	2	3	8/28/69	8/29/69	9/7/69	9/7/69	9/7/69		
210	213	START FIN CARP	1	2	0	8/28/69	8/29/69	8/28/69	8/28/69	8/29/69		
215	222	BLOW CEIL INSUL	1	200	9	8/25/69	8/26/69	9/7/69	9/7/69	9/7/69		
216	223	WEATHERSTRIP	1	171	7	8/25/69	9/7/69	9/10/69	9/10/69	9/11/69		
217	224	COMP FINISH CARP	3	4	1	9/7/69	9/7/69	9/7/69	9/7/69	9/7/69		
219	226	MEAS+INS FORMICA	5	10	0	8/29/69	9/7/69	8/29/69	8/29/69	9/7/69		
220	227	DLV DISHWASHER	0	11	25	8/7/69	8/7/69	9/7/69	9/7/69	9/7/69		
FRG DMCUP DW												
221	228	DLV OVEN RANGE	1	12	32	8/7/69	8/7/69	9/17/69	9/17/69	9/18/69		
229	231	SPOT DRYWALL	1	2	1	9/7/69	9/7/69	9/7/69	9/7/69	9/10/69		
229	240	REQUEST PAY E	1	1	18	9/7/69	9/7/69	10/7/69	10/7/69	10/7/69		
230	232	INSTL FIN PLUMB	3	136	0	9/7/69	9/11/69	9/7/69	9/7/69	9/11/69		
DISHWASHER												
231	234	DELAY TIME E	0	1	1	9/7/69	9/7/69	9/10/69	9/10/69	9/10/69		
234	236	START PAINTING	1	88	1	9/7/69	9/10/69	9/10/69	9/10/69	9/11/69		
238	251	COMP PAINTING	3	88	0	9/11/69	9/16/69	9/11/69	9/11/69	9/16/69		
239	247	DR ELEC FIXTURES	1	3	4	9/10/69	9/11/69	9/16/69	9/16/69	9/17/69		
240	284	PAY E RECEIVE	5	1	18	9/7/69	9/16/69	10/7/69	10/7/69	10/10/69		
247	248	DLV ELEC FIXTURES	1	28	4	9/11/69	9/12/69	9/17/69	9/17/69	9/18/69		
FIX COST + \$100												
249	250	RGH CLEAN UP	1	90	30	8/25/69	8/26/69	10/7/69	10/7/69	10/7/69		
253	266	FINAL GRADING	1	166	30	8/26/69	8/27/69	10/7/69	10/7/69	10/7/69		
254	260	DLV PREFIN FLRNG	1	69	1	9/16/69	9/17/69	9/17/69	9/17/69	9/18/69		
255	261	INST SHR DR+MRS	2	14	1	9/16/69	9/18/69	9/17/69	9/17/69	9/19/69		
256	262	SAND+SEAL FLOORS	1	2	0	9/16/69	9/17/69	9/16/69	9/16/69	9/17/69		
257	263	CLEAN WINDOWS	2	173	1	9/16/69	9/18/69	9/17/69	9/17/69	9/19/69		
258	264	FIN ELEC WORK	1	143	2	9/16/69	9/17/69	9/18/69	9/18/69	9/19/69		
DISHWASHER												
260	269	INSTL PREFIN FLR	1	2	1	9/17/69	9/18/69	9/18/69	9/18/69	9/19/69		
262	271	INSTL RESL FLRS	1	16	1	9/17/69	9/18/69	9/18/69	9/18/69	9/19/69		
265	266	DLV PASSAGE SETS	1	29	15	9/17/69	9/18/69	10/7/69	10/7/69	10/7/69		
265	268	INSTL SHOE+HARD	2	2	0	9/17/69	9/19/69	9/17/69	9/17/69	9/19/69		
267	270	INSTL STORM+SCRN	0	2	4	9/18/69	9/18/69	9/24/69	9/24/69	9/24/69		
271	272	FINAL CLEAN UP	3	1	0	9/19/69	9/24/69	9/19/69	9/19/69	9/24/69		
273	275	FNL INSP INSIDE	1	1	0	9/24/69	9/25/69	9/24/69	9/24/69	9/25/69		
274	276	FNL INSP OUTSIDE	1	1	11	9/24/69	9/25/69	10/7/69	10/7/69	10/10/69		

Part of the printout of a construction schedule.

New Shared Hospital System Developed By Medical Center and Software House

NEW YORK — A shared hospital and medical information system, designed to reduce administrative, nursing, and medical paper work on behalf of patients in hospitals, medical, and nursing centers, has been developed by Gamut Systems, Inc.

The system, Medic, is the result of a joint effort by Gamut Systems, Inc. and the Saint Barnabas Medical Center in Livingston, N.J. Medic provides hospital personnel with automated handling of information on some 90% of patient-related activities. According to John Depierrro, company president, Medic combines IBM's Medical Information Systems Program (Misp) and Shared Hospital Accounting System (Shas) as the basic op-

erating environment in which the requirements of various subscriber hospitals can be fulfilled.

Gamut has refined and combined Misp and Shas during 18 months of continuous research and development, he said, to a point at which "literally hundreds of thousands of man-hours of paper work and record-keeping are taken out of the hospital and thrown into the computer."

Patient-related activities are linked within the medical center by remote terminals into a central computer at the company's medical information center, thus freeing hospital personnel for other duties.

Not only are routine billing and accounting procedures handled, but every medical and

nursing record is quickly stored and made available on demand, he said.

Joseph J. Treanor Jr., company vice-president, reports that Medic offers the following information services: admissions, medications, laboratory, x-ray, dietary, central service, financial reporting, patient billing, general ledger, accounts receivable, and payroll/personnel management.

Treanor, in discussing Medic and its interest for hospital administrators, states: "All one needs is a keypunch and terminals." Linked to the computer complex is a time-shared information system, exclusively designed to service a network of hospitals. It offers the full benefits and economies of automation at a fraction of the cost to a hospital installing a system on its own, Treanor said.

The research, development, and testing of the Medic system at Saint Barnabas Medical Center has already proven beneficial. According to Robert T. Fisher, director of computer operations for the 800-bed medical center, Medic has saved the institution some \$1 million since the information system became operable.

"The availability of the accurate, timely information in the hands of accounting personnel can substantially improve the cash position of a hospital."

"The accounting service at Saint Barnabas has reduced our outstanding accounts receivable by about 20 days of patient income. This represents a \$1-million reduction in outstanding receivables during the past 18 months," Fisher said.

Statistical, Analytical, and Electrical Engineering Services Offered by ITT

PARAMUS, N.J. — Statistical, analytical, and electrical engineering services are available from International Telephone & Telegraph Data Services through its Reactive Terminal Service.

The engineering service package incorporates Ecap (electronic circuit analysis program) in two versions; and also Wyre, a wire list generator; CSMP (continuous system modeling program) which allows the digital computer to perform the functions of an analog computer in circuit analysis; Cluster, a physical configurator for electronic circuits; Logic, a program for solving Boolean algebraic expressions; and Lowpas, a pro-

gram designed to assist in the development of low-pass filter circuits.

Statistical program applications include a group of 20 analysis packages, biomedical programs, conversational statistical programs, and a group of S/360 scientific subroutines that will enable users to develop their own programs and routines for statistical analysis or other scientific applications.

The company claims that this represents a significant expansion of its commitment to the statistical data processing area.

Offices are at Route 17 and the Garden State Parkway.

ANN ARBOR, Mich. — CPM², a critical path method job-costing system for use by builders of single- or multiple-family dwellings is available from Information Control Systems, Inc.

The system was developed for Pulte Homes, Inc., a nationwide builder based in Detroit, and incorporates many reports designed to minimize the time and money lost in completing construction schedules, the company said.

Reports produced include activities to be started, activities to be completed, vendor purchase orders, activity analysis report, and a detailed report on each dwelling under construction showing dates, percentage complete, scheduled dates, vendors involved, and detailed cost-variance analysis.

Forecasting can be done through the entry of information up to 15 months in advance of proposed starting dates, and cash flow projections can be prepared based on these figures.

Cost distribution, file maintenance for the cost files, and correction data entry are provided throughout the system to maintain a proper relationship with observed costs and results.

The system allows customized extras through the use of entered costs and numeric codes, reflecting the actual way in which a house is ordered, the company claims.

The system is sold as a package, is written in Fortran, and operates on any S/360, the company said.

Company offices are at 109 E. Madison Ave.

Management Aid Offered Physicians and Dentists

WASHINGTON, D.C. — Physicians and dentists in the Washington area are now receiving a complete management service from Datamedics, Inc., and the service will be available nationwide, according to the company.

The service has been operating in its current six-state region since April of this year, according to James M.H. Mills, company president. Customers include two hospitals and 25 clients.

Total management needs, including personnel; equipment, billing, collection services, and financial management — right through the leasing of medical

equipment and cars, are offered, according to Mills.

The system operates on the company's Honeywell 1250 and utilizes Mod I software.

The company expects to have a 3200 CPU, to be operated with Mod IV, installed next year. The terminal used is the Data-products 1000, which each client installs in his own office.

Other services offered through the company, for doctors and dentists, include an office decoration service and a collection service.

The collection service is offered through a subsidiary, Data-Credit, Inc.

Offices are located at 7979 Old Georgetown Road.

'Remtel' Remote Service Designed For Large Scale Scientific Users

NEW YORK — Remtel, a service offered from Information Standards, Inc., includes full S/360 operating system capabilities as well as the IBM scientific subroutine package, integrated civil engineering system (Ices), developed at MIT; the electronic circuit analysis package (Ecap); the IBM continuous system modeling program (CSMP); the project management system (PMS); the IBM general-purpose simulation system (GPSS); and the mathematical programming system (MPS), according to the company.

Intended for large-scale users of remote processing, Remtel offers interactive terminal services through the company's 360/65. The company is located at 295 Madison Ave. Other sites are planned in the New York area, the company stated.

**Income Tax Service
Now Offered Nationally**

GREENVALE, N.Y. — Digitax, an income tax preparation service available locally for the NYC area, has expanded opera-

tions to a nationwide basis, according to the company.

All required data is submitted in prescribed "forms," actually resembling questionnaires, and is then reviewed by tax experts.

Information is then transcribed for optical scanning and fed into a computer where tax detail figures are prepared.

Turnaround processing is provided within 48 hours, according to the company, as opposed to nine days with a previous system.

The service is available for brokerage house tax analysis, banks, lawyers, and CPAs, the company says. Offices are at 14 Plaza Road.

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New Literature

Accessories for efficient computer room operation are described in Bulletin 707-B offered free with samples by the W.H. Brady Co., 726 W. Glendale Ave., Milwaukee, Wis. 53201

Questions on Data Modems are answered in a 12-page booklet from RFL Industries, Inc., Boonton, N.J. 07005.

A four-page color brochure on the Optimat system for automated artwork generation may be obtained from Optical Gaging Products, a division of Ex-Cell-O Corp., 26 Forbes St., Rochester, N.Y. 14611.

The role of data terminals in time-sharing operations is discussed in an eight-page brochure from Teletype Corp., Dept.

SP-84, 5555 Touhy Ave., Skokie, Ill. 60076.

A description of the new model of the EAI 430 Data-plotter is in a 12-page brochure available from Electronic Associates, Inc., Bulletin #951504, West Long Branch, N.J.

How organizations converting from 1400 systems with disk storage files to S/360 operations can save over \$20,000 in programming and computer time is detailed in Brochure 69062 from Sutin Systems Co., Inc., 42 Whitcomb Ave., Hingham, Mass. 02043.

The features, operation, and technicalities of two new calculators are available in leaflet S-3 from Science Spectrum, Inc.,

1216 State St., Santa Barbara, Calif. 93101.

Information on APL, IBM's new programming language that is now available as a time-sharing service, may be obtained from Computer Innovations, 10225 S. Western Ave., Chicago, Ill. 60643.

Specifications for the CH 1100 Series data communications interface circuits, which conform to EIA Standard RS2328 specifications, are featured in a six-page brochure offered by Cermetek, Inc., 660 National Ave., Mountain View, Calif. 94040.

Means by which a bank can meet its automation needs are detailed in an eight-page brochure offered by the financial

automation division of Mauchly Associates, Inc., Commerce and Enterprise Drives, Montgomeryville, Pa. 18936.

A brochure on a stand-alone system that allows a typist to prepare control tape from prototype logic diagrams for fully and semiautomatic N/C wire wrapping equipment is offered by Dimensional Systems, Inc., 393 Totten Pond Road, Waltham, Mass. 02154.

The fall schedule of courses and seminars for management and technical personnel in the data processing and information sciences field is available in an eight-page brochure from Brandon Systems Institute, 1700 Broadway, New York 10019.

A two-page technical data

sheet describing the Sealectro-card 51 x 12 tab reader is available from the programming devices division of Sealectro Corp., 225 Hoyt St., Mamaroneck, N.Y. 10543.

The data communications capabilities of the Teletype Corp.'s new Model 37 terminals are described in a 16-page illustrated brochure available from the company, Dept. SP-83, Skokie, Ill. 60076.

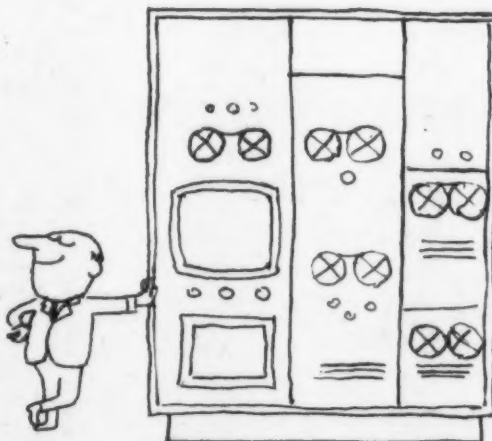
An eight-page brochure for planning offices and computer facilities using three-dimensional scale models is available from "Visula" Industrial Products, Inc., P.O. Box 50 B, Indianola, Pa. 15051.

A user's guide to successful implementation of special computer systems is available from Codon Corp., 400 Totten Pond Road, Waltham, Mass. 02154.

A booklet describing the Score system is offered by Atlantic Software, Inc., 5th and Chestnut Sts., Philadelphia, Pa. 19106.

A brochure describing how management can bridge the "software gap" has been released by Pryor Computer Software Corp., 400 N. Michigan Ave., Chicago, Ill. 60611.

How to select the best graphic processing system for your money.



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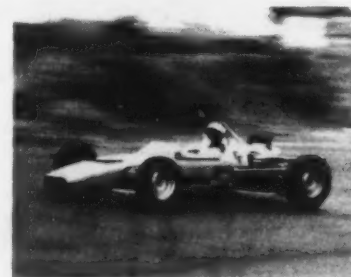
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- 9. Educational/Medical/Legal
- 10. Government/Military
- 11. Other _____



You can see the Computerworld Crosslé Ford at Sports Car Club of America events throughout the Northeast.

Student School Bus Scheduling Speeded Through Computerized Vehicle Program

TRENTON, N.J. — A computer is being used to help get children to school safely and on time.

Recognizing that more efficient bus scheduling helps improve safety and reduce costs, Dr. Orville Parrish, director of pupil transportation for New Jersey, is experimenting with an IBM System/360 to prepare school bus routes.

Standards Director Named

BLUE BELL, Pa. — Marvin W. Bass has been appointed director of standards for Univac. He will be responsible for Univac representation in standards activities related to the computer industry throughout the world.

"The computer provides added controls over variables that endanger the children's safety by minimizing driving time and distance traveled," said Parrish.

New Jersey transports over 500,000 children twice daily, using 10,000 buses that cover 72 million miles a year.

In a pilot program at Toms River, the computer helped design bus routes in three days. Previously, four weeks were required to plan the schedules.

Melvin Thompson, transportation supervisor at Toms River, noted, "We expect to realize dollar savings of at least 2%."

"With a fleet of 103 buses, this can come to a sizable amount."

"In addition the computer should make it easy to incorpo-

rate last minute changes to the schedules," Thompson said. "We should be able to reschedule a route within three minutes, instead of the three days it used to take."

The schedules are prepared using an IBM computer program called VSP/360 (vehicle scheduling program). Using the program, school officials can select bus stops by considering student location, types of roads, possible bottlenecks, location of intersections, and other variables that affect travel time.

Routes are designed by determining access to the selected stops, capacity and speed of the vehicles, earliest possible starting times, and the maximum number of stops per route.



COMPUTERWORLD

applications

Legal Research Data Bank Holds All Ohio Statutes

COLUMBUS, Ohio — Lawyers throughout this state will soon be able to obtain prompt answers to legal research questions from a computer system that reportedly has in storage all state laws.

Called Obar, the system is the result of a joint effort by the Ohio Bar Association and Data Corp., a subsidiary of the Mead Corp. The system utilizes an IBM 360/40 connected to tele-

typewriter inquiry terminals.

The ability to ask questions of the computer in English is a prime feature of the Obar system. Each of the 100-million words that will comprise the complete legal data bank can be used as the basis for extracting information.

The initial data terminal in the system has been installed in the offices of Attorney General Paul W. Brown, and five more terminals will be installed in law offices in Cincinnati, Dayton, Cleveland, and the Ohio Bar Association headquarters in Columbus. In a year's time, Obar officials estimate that more than 100 terminals for access to the computer will be installed throughout the state.

Even without access through the terminals, lawyers will be able to telephone questions to the Ohio Bar Association to be relayed to the computer. The result will be fast, accurate answers to the kind of complex legal questions that often keep law clerks busy pouring through law libraries for weeks.

Economy and accuracy are the advantages emphasized for the system. Small law firms unable to afford costly research facilities for modest-paying clients may avail themselves of these facilities the same as larger firms.

Questions can be broadly stated at first, then narrowed to fit the precise requirements of the case or problem involved. In seconds, the computer advises the operator how many cases might fit within a particular subject he has defined.

Because every word of law entered in the computer memory bank can be used as a handle to retrieve information, the Obar system solves another problem that has long plagued attorneys — that of indexing.

Every attorney has experienced the frustration of trying to locate a familiar point of law, whether in a statute or in a court case.

The problem comes in finding what word or words were used to index it. Since the Obar system effectively scans the full text of each Ohio court case or statute, any word appearing in them serves as an index.

Tests indicate that a properly programmed and instructed computer will locate about 90% of all case law bearing on the problem given it. The same tests indicate that experienced legal research attorneys will find about 80%. The computer system is more economical and faster than manual research.



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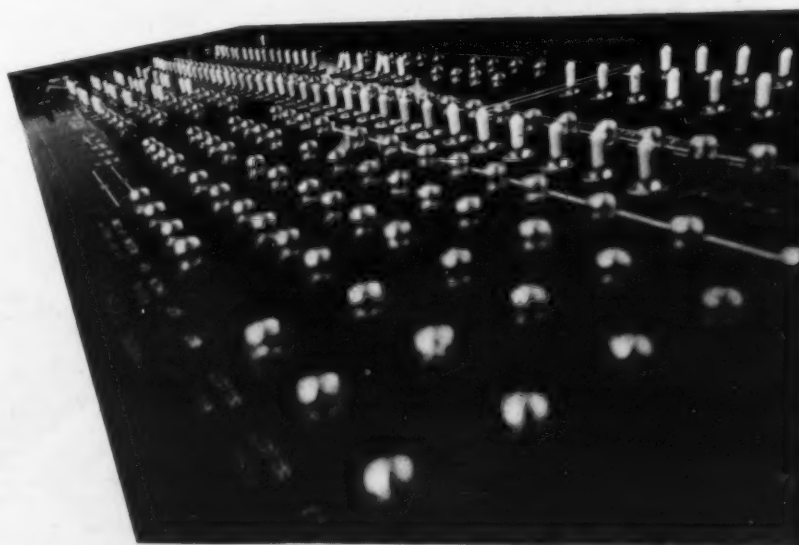
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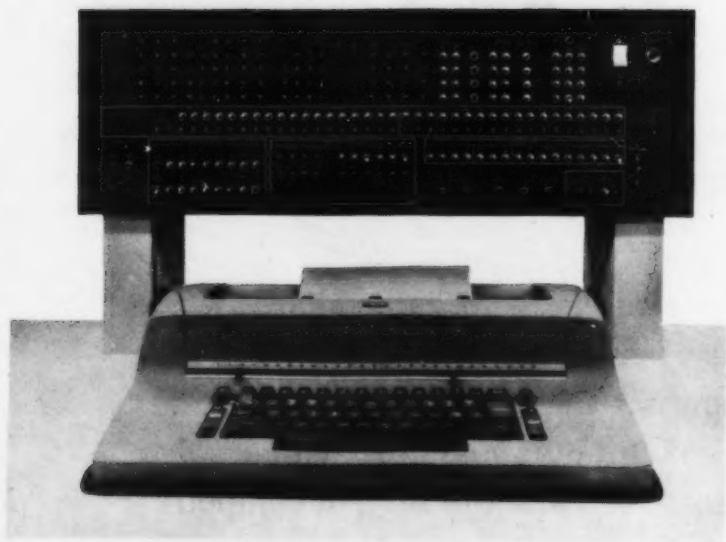
It's our computer, complete with a remarkable software package developed by Call-A-Computer, Inc. interacting with our own designers and staff. Fourth generation. Accessible microprogramming. Lots of core. It's all in the next few pages. Read. Write. And ask.

In time-share computing, the chips are down.



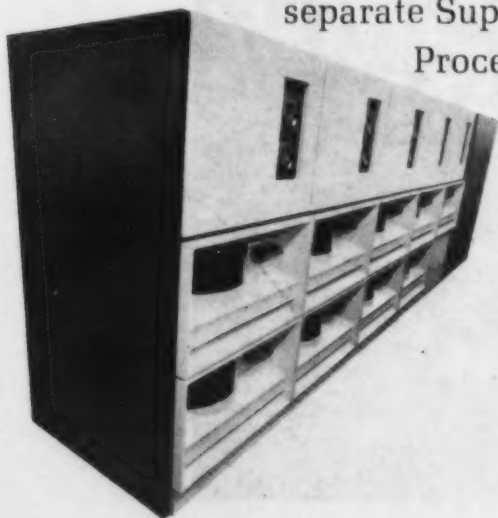
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A candid look at the incredible new



IC-7000 is a brand new, fourth generation interactive time-sharing computer with more core than meets the eye.

This is the first time-share computer to back up a programmable front end with a double back end. In addition to the CPU, the IC-7000 has an exclusive and separate Supervisory Processor. This allows the



time-sharing overhead to be handled in one part of the system while number crunching activities are slammed through the higher speed, optimized areas.

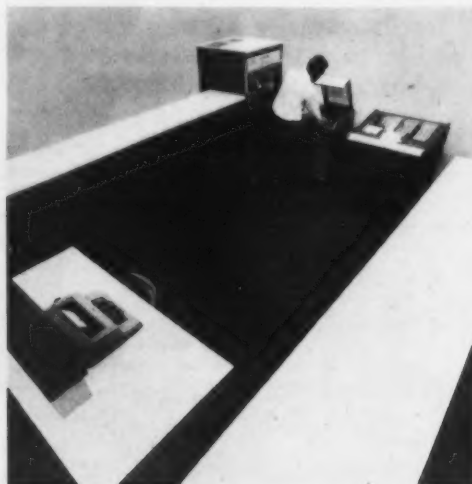
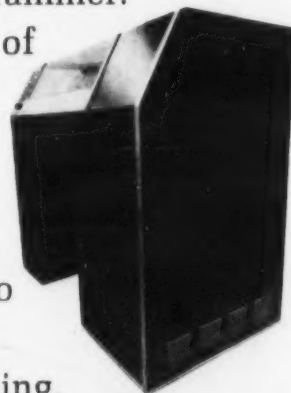
With a 65K-36 bit word core, the IC-7000 has up to 50K available to the user.

File security is available in three levels. The Top Secret level is even impenetrable to the system programmer. No one else has this level of security.

Associative file system. An exclusive retrieval system which allows the user to call into memory with relatively loose, associative addressing.

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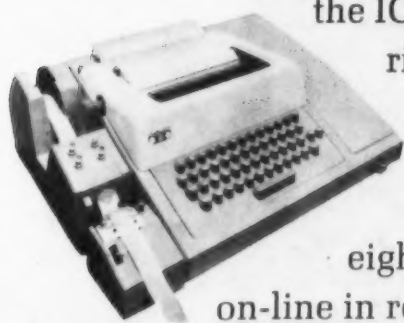
Dynamic Time Slicing allows pro-



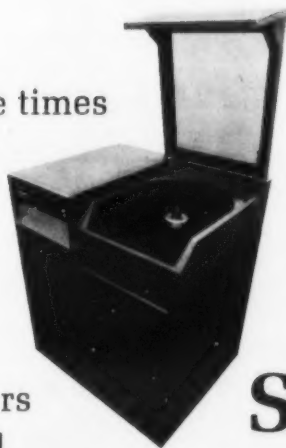
time machines.

grammed self modulation of queue times to predetermined optimums. And the IC-7000's terminal flexibility allows hook-ups to CRT, TTY, Selectric, Friden, concentrators and other computers.

With the compiler compiler, users can mix and match FORTRAN and BASIC subroutines within the same program or build their own program language. FORTRAN, BASIC, assembly language and COBOL on the way make the IC-7000 a language-rich machine.



In full set-up, one IC-7000 can handle up to eighty terminals on-line in real time. The same relative properties and advantages are available with somewhat less disk storage and a reduced core.



For complete details and full pricing/leasing schedules, contact Bill Otterson, Vice President of Marketing or call any Standard Computer Sales Office.

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Minneapolis: (612) 926-0706; New York: (212) 661-1834;
Philadelphia: (215) 563-6350; San Jose: (408) 294-7150;
Waltham: (617) 891-5083.

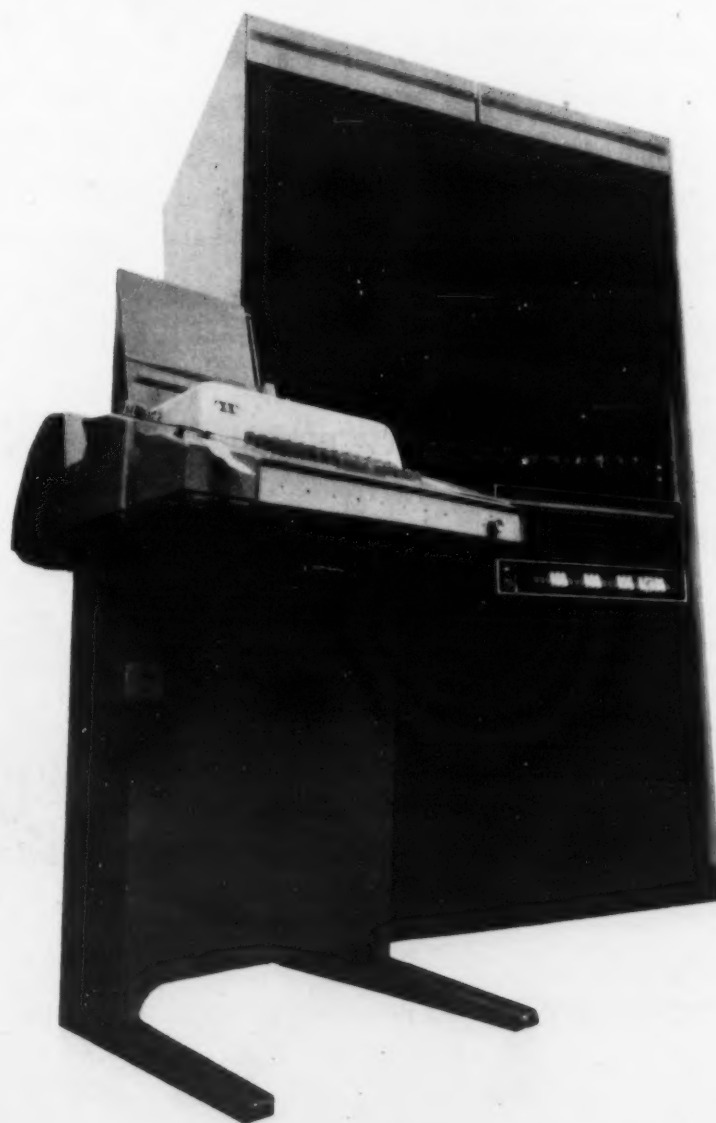


All software for the IC-7000 was developed in conjunction with Call-A-Computer, Inc.

Pick your time.

If you don't need all those lines into your own in-house computer, choose from two plans of time-sharing as offered by Call-A-Computer. Single-unit terminal usage, or on-site concentrators which offer substantial cost reductions to large volume users of remote time-sharing. These exclusive on-site concentrators provide extra economy to users with ten or more terminals installed in any location.

In either plan, you still get the full capabilities of fourth generation hardware and software interacting for maximum advantage to the computer user. This interaction between control and main memories accounts for the tremendous increase in speed/volume/throughput in these machines. Software designed by Call-A-Computer to optimize the potentials of fourth generation hardware brings these advantages within the reach of everyone.



If it's a job which a computer could be doing better, now you can have a computer do it. Call-A-Computer time-sharing gives you the opportunity for efficiency and effectiveness in creative computer usage.

Because the joint efforts of Standard and Call-A-Computer were so successful, you can purchase or lease a full-scale interactive time-sharing system, a more modest and lower cost system, or buy blocks of time in small quantities or big, economical chunks.

Got the picture? Take your time.

For more information on Call-A-Computer capabilities, call one of the C-A-C representatives in the following cities.

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New Registrations

COMPUTER GRAPHICS, INC., 1400 Park Bldg., Pittsburgh, Pa. 15222, a company that develops a computer-linked, audio-visual classroom instructional system, filed to register 225,000 shares of common stock. Proceeds, at \$8 per share maximum, intended to develop proprietary software programs for research and development; to equip and improve its production facilities; to establish several training centers and sales offices; to finance advertising and promotion; and to purchase initial inventory of computers, modules, and other components. The underwriter is Steindecker, Friedman & Co., 5 Hanover Sq., New York, N.Y.

CAMBRIDGE COMPUTER CORP., 405 Lexington Ave., New York, N.Y. 10017, a company that organizes, develops, operates, and manages data processing facilities for others, filed to register 200,000 shares of common stock. Proceeds, at \$10 per share, intended to repay bank loans, to establish additional data centers, to finance advertising and promotion, to expand its education services, and to fund a start-up period of operations of a 51%-owned subsidiary. The underwriter is Frank Glinberg & Co., Inc., 50 Broadway, New York, N.Y.

MULTRONICS, INC., 5712 Frederick Ave., Rockville, Md., a company that designs and constructs nuclear radiation-monitoring devices and communications systems and components, filed a secondary registration of 100,506 shares of common stock. Price is \$6 per share maximum.

WORLD COMPUTER CORP., 1615 Stemmons Freeway, Dallas, Texas 75207, a company engaged in several aspects of the computer and data processing business, filed to register 225,000 shares of common stock. Proceeds, at \$5 per share maximum, intended for development of computer systems applications for a proposed data communications center and for production and marketing of its electronic payroll information collection system. The underwriter is Brown, Allen & Co., 600 Empire Life Bldg., Dallas, Texas 75201.

GRI COMPUTER CORP., 76 Rowe St., Newton, Mass., a company that designs, develops, manufactures, and markets computers for use as central control devices in larger systems, filed to register 300,000 shares of common stock. Proceeds, at \$7.25 per share, intended for marketing and sales promotion; for research and development of interfaces and controls for peripherals; for production tools, equipment, and facilities; and for in-process inventory. The underwriter is Newton Investment Corp., 141 Milk St., Boston, Mass.

WORLD WIDE TIME-SHARING, INC., 180 N. Michigan Ave., Chicago, Ill. 60601, a company that offers on-line computer service, filed to register 245,000 shares of common stock. Proceeds, at \$6 per share, intended to enlarge the company's Chicago operations and to develop new computer application programs. The underwriter is Willard Securities, Inc., 445 Park Ave., New York, N.Y.

CENTAUR MINI COMPUTER DEVICES, INC., 545 Madison Ave., New York, N.Y., a company that develops electromechanical gaming devices, automatic dental ovens, and an electronic-coded relay, as well as other related electronic and electromechanical digital control and data processing devices, filed to register 200,000 shares of common stock. Proceeds, at \$6 per share, intended to establish a manufacturing and assembly facility; to finance the employment of a staff in marketing, technical, and office personnel; to establish a maintenance department; and to finance research and development. The underwriter is Charter Planning Corp., 15 Williams St., New York, N.Y. 10005.

AREOPTIX TECHNOLOGY CORP., 25 North Mall, Plainview, N.Y. 11803, a company that manufactures and markets a limited number of miniaturized electro-optical components and subsystems and develops electro-optical scanning and recording systems based thereon, filed to register 100,000 shares of common stock. Proceeds, at \$5 per share, intended for research and development. The underwriter is Service Securities, Inc., 105 Madison Ave., New York, N.Y.

OPTIMAL COMPUTER SERVICES, INC., 151 W. 51st St., New York, N.Y. 10019, a company that provides consulting services, filed to register 160,000 shares of common stock. Proceeds, at \$3 per share, intended for addition to the company's working capital. The underwriter is Charles Plohn & Co., 200 Park Ave., New York, N.Y. 10017.

CORPORATION S, 2600 Stemmons Freeway, Dallas, Texas 75207, a company that establishes facilities called Optimization centers, to perform data capture services and provide computer analysis and programming services, filed to register 165,664 shares of common stock, to be offered for subscription by common stockholders. Proceeds, at \$36 per share maximum, intended to establish and equip centers and to develop application programs for use by the centers. The offering is contingent upon the purchase by Recognition Equipment Inc. of 162,350 shares at a price equal to the subscription price. No underwriter is involved.

COMMAND CONTROL, INC., 600 Valley Road, Wayne, N.J. 07470, a company that furnishes general data processing software services and data processing services for medical and allied fields, filed to register 200,000 shares of common stock. Proceeds, at \$3 per share, intended for marketing, advertising, and computer rentals. The underwriter is Service Securities, Inc., 122 E. 42nd St., New York, N.Y.

NORTH AMERICAN ROCKWELL CORP., 2300 E. Imperial Highway, El Segundo, Calif. 90245, a company engaged in diversified research, development, and production, primarily in the fields of launch and space vehicles, electronics, and related areas and in the manufacture of various components for commercial highway and off-highway vehicles, passenger cars, and farm and construction equipment, filed to register 4,648,792 shares of common stock. These shares are deliverable upon conversion of \$1.35 convertible preferred stock, Series B, issued in connection with the acquisition of Miehle-Goss-Dexter, Inc. or are reserved for issuance on exercise of MGD employee stock options. These options were converted into options for North American Rockwell Series B stock upon the acquisition. Also included in this statement are 127 outstanding shares of \$4.75 convertible preferred shares, Series A (and the underlying common shares). All or part of the shares being registered may be offered for sale from time to time by the present holders or recipients thereof at prices current at the time of the sale—currently \$40 per common share and \$80 per preferred share maximum.

MITE CORP., 446 Blake St., New Haven, Conn. 06515, a company that designs, develops, manufactures, and sells data-receiving, alphanumeric page printers, tape printers, and punches and data transmitting alphanumeric keyboards and tape readers, filed to register 1,396,650 shares of convertible preferred stock, Series A. Subject to the approval of Mite stockholders, it is proposed to offer these securities in exchange for the outstanding common stock of Hell-Coil Corp. at the rate of one common and one preferred share for each Hell-Coil common share.

Acquisitions

Datatron, Inc. of Santa Ana, Calif., will acquire control of **HFS Manufacturing Co., Inc.** and **Datakote, Inc.**, both of Inglewood, Calif. Datatron will acquire 51% of the outstanding stock of each of the companies and options to purchase the remaining 49%. The options are exercisable any time over the next three years, with the price to be determined by net profits of both companies. Terms of the transaction were undisclosed. Approval of the acquisition has been granted by the board of directors of both companies and is subject to the approval of regulatory agencies.

Systems Associates of Long Beach, Calif., has completed the acquisition of **Water Resources Engineers, Inc.** pending issuance by Systems Associates of a maximum of 30,000 shares of common stock for all the outstanding common stock of WRE. The final purchase price will be determined by an earnings formula over the next three years. WRE is engaged in planning, design, and management of comprehensive water-development projects, with heavy emphasis on computer-aided analyses.

Electronic Computer Programming Institute, Inc. and **Computer General Corp.**, both of New York, have terminated merger plans involving them and other companies.

The boards of directors of **Foto-Mem, Inc.** of Natick, Mass., and **Business Information Technology, Inc.** have approved in principle a merger of the two companies on the basis of three-fourths of a share of Foto-Mem stock for each share of Business Information Technology. Foto-Mem would be the surviving company, and the merger would involve approximately 687,000 shares of its stock.

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September 17, 1969

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Datatron's Sales Up 600%

SANTA ANA, Calif. — Datatron Inc. has announced sales for the fiscal year ended June 30, 1969, of \$2,179,277, three times the \$736,370 reported for fiscal 1968. Net profit rose to \$203,672, compared with \$28,033 the prior year, an increase of 600%.

Earnings per share equaled 36 cents based on 570,002 average number of shares outstanding, compared with six cents per share based on 455,427 average number of shares outstanding in 1968. The current figures are subject to final audit.

Arthur L. Purcilly, Datatron president, said that these figures compared to previously forecast sales of \$2.1 million and earnings of 30 cents per share.

The current figures are for Datatron only and do not include any consolidation of recently announced acquisitions.

According to Purcilly, fiscal 1970 sales should reach \$9 million, and earnings are expected to climb to 85 cents per share on a consolidated basis with presently announced acquisitions. These forecasts do not include additional companies under evaluation as possible merger partners.

"Datatron's goal is to become a large corporation through internal growth and acquisition of other electronic manufacturing companies. Our acquisitions will not be conglomerate, but congeneric in nature," Purcilly said.

He defined congeneric as being a "multiproduct, multi-company corporation with all companies and all products interrelated in one general field."

Datatab Sells 88% More, But Drops 25¢ per Share

NEW YORK — Datatab, Inc. sales for the first half rose 88% to a record \$1,869,058 from \$992,990 attained in the similar six-month period ended June 30, 1968, according to Chairman and Chief Executive Alvin L. Steinhart.

Net income for the period amounted to \$26,694, equal to 5 cents per share after giving effect to \$5,500 in investment credits, compared with \$111,453, or 30 cents per share, after giving effect to \$46,500 in investment credits in the corresponding first half of 1968.

Per share earnings in 1969 are computed on 578,000 average common shares outstanding during the period, and per share earnings in 1968 are based on the considerably fewer 365,000 average shares outstanding a year ago.

Steinhart said that results reported include the operations of Tabulating & Data Processing, Inc., on a pooling-of-interests basis.

TDP was merged into Datatab in June, 1969.

Steinhart pointed out that though the merger had the immediate effect of lowering earnings in the recent first half, it gave Datatab entree into two fast-growing computer service areas and provided the company with the opportunity for sharply higher future operating levels.

He described the two new areas as the accounts receivable and law office analysis fields, noting that "TDP's accounts receivable service and law office accounting packages are generally acknowledged to be among the most advanced and effective in the industry."

Besides expertise in two important growth fields, TDP, he added, "has given Datatab ex-

tensive new depth of management that is proving extremely valuable to our combined operations."

Datatab, which specializes in processing data for the marketing, survey, and political polling fields, also is a prominent producer of computer letters and has developed a packaged data processing program for the dry cleaning industry utilizing advanced optical scanning techniques.

Steinhart noted that Datatab's operations alone on an unconsolidated basis showed sharp advances in the first half. Excluding TDP, Datatab scored a 21% increase in pretax earnings on a 118% gain in sales for the period ended June 30, 1969.

Sales, he said, rose to \$1,358,201 from \$620,479, and pretax income advanced to \$109,202 from \$89,910 in the first half of 1968.

Steinhart said that an intensive program of consolidation is now under way to eliminate overlapping operations and integrate TDP as a profitable Datatab entity.

"The effects of the cost savings are already beginning to be felt in the current quarter," said Steinhart, who added that they result from the return of a rented TDP 360/30 computer and use of Datatab's wholly owned 360/50 and 360/30 units instead and subleasing TDP's excess space.

Savings produced by these and other moves, he pointed out, "are expected to build appreciably in future periods and put TDP on a highly profitable operating basis."

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SDC Viewpoint--Part II

SDC Will Emphasize Commercial Division in Future Growth Plan

By Phyllis Huggins

Special CW Correspondent

SANTA MONICA, Calif.

System Development Corp. will be stressing its new commercial division for most of its growth for the future.

At present, the commercial division accounts for only 5% of the volume, while the military division brings in 80%, and public systems accounts for 15%.

"We think the real challenge is in the commercial area. The military has been ahead of the commercial field in sophistication of use. They had the money and the need. Now we'll see the action and the excitement in the commercial area," said Wesley S. Melahn, SDC president.

Picking up new challenges is SDC's pattern.

They developed the first operational real-time information system; one of the first higher-order programming languages (Jovial); developed the first general-purpose time-sharing system; were one of the first organizations to go into the field of public systems; and developed the first time-shared, general-purpose data management system.

Data Division

"Revenue projection for the commercial data division for the fiscal year beginning July, 1969, is \$4 million. Of this, 75% will be contributed by our new SDC data centers," said Robert Hamer, head of the division.

"Our division offers the full range of software work. In contract software, our New York branch alone had revenues of \$1 million last year," he said.

Customers included Bell Telephone, Bendix Corp., and government agencies. There are currently 12 software contracts in-house.

We are betting a lot of the corporation's money and reputation on the time-shared general-purpose data management system," said Hamer. "This is the main effort of the commercial systems division."

The data management system will be marketed through their SDC data centers and as a total package installed at the customer's site.

Cost of the on-site package will be up in the six figures. For the past six months customers have been using it in a test mode. The first week of September it goes on a commercial basis.

Examples of their present clients include two major oil companies, a major conglomerate, a major bank, a container manufacturer, and an electronics component manufacturer, among others.

More Data Centers

Late in September, SDC will simultaneously announce the commercial launching of the

general-purpose data management system and the opening of two SDC data centers. The data centers will serve the greater Los Angeles area and the Washington, D.C., area.

Customers in the Washington area are now served through a leased line multiplexed service connected to Los Angeles. This line will be severed, and the Dallas area will be connected by leased lines to Los Angeles.

In addition, New York will be connected to the Washington center. As the New York and Dallas services build up their customers, new centers will be established and new multiplexed line routings established.

Expansion will be carried out in this manner.

"We expect there will be off-

shoots from the management system data base which will become the development of proprietary data bases — the language of specific industries. We can take our general-purpose system and provide appendices of specific terminology for particular groups of users — the language of banks for example. One of the things we will be looking into is which industry segment to go into first."

The SDC data centers are also offering the more traditional programmer tools for the development of specific application packages, such as the Orbit package for the library field.

Next week — CW looks at SDC's outlook on proprietary software, military, and public divisions.

Systems Engineering Labs Ends Year at 70¢ a Share

FORT LAUDERDALE, Fla. — Systems Engineering Laboratories, Inc. has reported record-high consolidated revenues of \$17,298,000 and earnings of \$1,453,000, or 70 cents a share, for the year ended June 27.

Compared to the last fiscal year, revenues increased 44% and net income 47%.

For the corresponding period a year ago, the company recorded revenues of \$12,032,000 and consolidated earnings of \$989,000, or 50 cents a share.

New orders totaling \$17,860,000 and year-end backlog above \$11,000,000 also set records.

Sheldon P. Eglash, president, said, "During the past year, revenue from standard computer products for the first time exceeded revenue from custom products by a substantial margin."

"This has been due largely to effectively combining our systems design and custom-man-

ufacturing competence with standard production techniques and has led to increasing penetration in the real-time computer market," he said.

"The year also reflected our emphasis on the industrial sector of the computer marketplace. In 1969, 60% of our orders were received from nongovernmental customers, compared to 33% in fiscal 1968."

The company designs, manufactures, and markets computer systems and related data acquisition and control equipment primarily for real-time computation — the simultaneous measurement and processing of information.

Applications of Systems' computers range from laboratory studies for the early detection of heart disease, stroke, and cancer at the University of Missouri to commercial air-traffic control for Canada to production-line testing of automobile distributors.

FAA to Purchase \$14,270,082 Worth Of Peripheral Univac Equipment

WASHINGTON, D.C. — Secretary of Transportation John A. Volpe has announced that the Federal Aviation Administration will purchase from the Univac Division of Sperry Rand Corp. \$14,270,082 worth of modular add-on components to increase the capacity and reliability of the 64 automated radar terminal systems (Arts III) currently on order from Univac.

In taking the action, the FAA exercised its option to buy the additional Arts III components under terms and prices established in the original contract awarded to Univac last February. These components are

data processing modules such as input/output processors; memory modules and computer modules; and data acquisition subsystems, azimuth pulse generators and displays.

FAA Administrator John H. Shaffer noted that the agency's option to buy the additional Arts III components at the prices specified in the contract expires this month.

Arts III, when added to the existing airport surveillance radars, provides air traffic controllers with such vital flight information as aircraft identity and altitude directly on their radar scopes.

Earnings Reports

RIKER-MAXSON CORP. 6 Months Ended June 29 1969 a1968 Shr Ernd \$.53 Revenue 64,334,136 Earnings 1,503,599 a-Comparable results not available due to changes in fiscal year reporting of companies acquired that year.	DASHEW BUSINESS MACHINES, INC. 9 Months Ended May 31 1969 1968 Shr Ernd \$.08 \$.01 Revenue 2,697,000 1,929,000 Earnings 202,000 11,000 TOPAS COMPUTER CORP. 3 Months Ended June 30 1969 a1968 Shr Ernd \$.07 \$.06 Revenue 1,297,132 907,299 Earnings 49,783 35,805 a-Restated to include companies acquired on a pooling-of-interests basis.	CTC COMPUTER CORP. 3 Months Ended June 30 1969 a1968 Loss Per Shr \$.08 Revenue 529,195 Loss 58,815 a - Comparative statements not available, as company began operations in June, 1968. DIGITRONICS CORP. 3 Months Ended June 30 1969 a1968 aShr Ernd \$.08 \$.04 Revenue 4,715,342 3,976,964 Tax Cred b225,000 Earnings c454,124 125,654 a - Based on income before tax credit; b - Represents tax benefit of loss carry-forward; c - Equal to 15 cents a share; e - Gives retroactive effect of the merger with Dialight Corp. and Signal Indicator Corp. on June 14, 1968, on a pooling-of-interests accounting basis.	ELECTRONIC COMPUTER PROGRAMMING INSTITUTE 3 Months Ended June 30 1969 1968 Shr Ernd \$.04 a\$.03 Revenue 799,918 772,907 Spec Cred 107,173 Earnings 25,991 b127,771 6 Mo .06 a.18 Shr Ernd 1,443,322 1,529,649 Spec Cred 107,173 Earnings 43,503 b245,218 a - Based on income before special credit; b - Equal to 17 cents a share in the quarter and 32 cents in the six months. APPLIED DATA RESEARCH 6 Months Ended June 30 1969 1968 Shr Ernd \$.22 \$.16 Revenue 2,775,193 1,668,716 Earnings 200,752 135,153	COMPUTER USAGE CO. 9 Months Ended June 30 1969 1968 Shr Ernd ... a\$.13 Revenue \$9,447,800 10,714,195 Spec ... c52,605 Cred ... Earnings (724,507) e154,367 (Loss) a - Based on income before special credit; c - Net gain on sale of property; e - Equal to 20 cents a share. AMERICAN COMPUTER LEASING 6 Months Ended June 30 1969 1968 aShr Ernd \$.35 \$.09 Revenue 705,532 153,501 bSpec 203,071 73,000 Cred ... cEarnings 908,603 226,501 a - Based on income before special credit; b - Derived from income tax credit from filing consolidated returns; c - Equal to 45 cents a share in 1969 and 13 cents a share in 1968.
BANISTER CONTINENTAL CORP. 6 Months Ended June 30 1969 1968 Shr Ernd \$.15 \$.04 Revenue 7,336,000 828,000 Earnings 313,000 68,000 TECHNALYSIS CORP. 6 Months Ended June 30 1969 1968 Shr Ernd \$.04 Revenue 294,792 \$98,000 Earnings 23,544 (14,000) (Loss)	CENTRAL DATA SYSTEMS Year Ended May 31 1969 1968 Shr Ernd \$.30 \$.20 Revenue 829,000 420,000 Earnings 112,000 60,000			

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By time-sharing the data from 60 or more keyboard operators simultaneously, significant savings in data station costs of as much as 50% can be achieved. Costs drop to as low as \$4300 per data station for a typical 60 station system. For large data preparation installations, the time-shared input is the only economical way to go.

Data entered into the LC-720 is processed by a small digital computer and stored on an IBM/

360-compatible magnetic disc that provides the advantages of bulk storage and high speed random access of data. The problems associated with punched card handling or the mounting, pooling, merging and unmounting of magnetic tape reels are eliminated. All data is conveniently and economically stored in an IBM 1316 disc pack for direct high speed input to your modern data processing system. Naturally, an IBM/360-compatible magnetic tape is also provided with the system as standard equipment.

The LC-720 KeyDisc System also offers for the first time, data verification requiring one input pass only through the system, in addition to the normal technique of verification requiring two different operators. Record size is infinitely variable by each operator from 1 to 120 characters long and the system stores a large library of 30 or more different format control programs, all available simultaneously to any and all operators.

LC-720 KeyDisc System

Bring your own data for a demonstration

Logic Corporation invites you to see an operating demonstration of the LC-720 KeyDisc System at the company's premises. Bring your own original data and Logic will provide a reel of magnetic tape of the output of your data from the LC-720 for later printout at your own computer facility.

To arrange for a demonstration, contact Gary Tischler, Director of Marketing (201) 334-3713

LOGIC

15 E. Euclid Ave., Haddonfield, N.J. 08033 (609) 428-4626



ALPHANUMERIC

6 Months Ended June 30
 1968 1969
 aRevenue \$1,171,048
 Loss 325,523 \$667,302
 a - In August, 1969, the company renegotiated its contract with IBM. The changes include an increase in the original contract price. Sales income in this six-month period reflect the retroactive price adjustment on the systems accepted by IBM.

COMPUTER PROPERTY CORP.

6 Months Ended June 30
 a1969 1968
 Shr Ernd \$.40 \$.38
 Revenue 1,695,696 1,147,121
 Earnings 269,873 125,767
 a - Includes operations of List Management, Inc. on a pooling-of-interests basis.

COMPUTER TIME-SHARING

3 Months Ended June 30
 1969 a1968
 Revenue \$529,195
 Loss 58,815
 a - Comparable figures not available because company began operations on June 1, 1968.

COMPUTER LEASING CO.

6 Months Ended June 30
 1969 ba1968
 aShr Ernd \$.33 \$.32
 Revenue 26,940,000 13,347,000
 Earnings 1,751,000 1,486,000
 a - As reported by company; b - Restated to reflect acquisitions on a pooling-of-interests basis.

COMPUTER TECHNOLOGY, INC.

3 Months Ended June 30
 1969 a1968
 Shr Ernd \$.08 ...
 Revenue 16,517,000 ...
 Earnings 453,000 ...
 6 Months .16 ...
 Shr Ernd ...
 Revenue 31,869,000 ...
 Earnings 877,000 ...

a - Company was formed in August, 1968. The report notes that fully diluted share earnings, assuming exercise of common stock purchase warrants, were 8 cents in the quarter and 15 cents in the six-month period.

DEARBORN COMPUTER AND MARINE

3 Months Ended July 31
 a1969 b1968
 Shr Ernd \$.36 \$.38
 Revenue 13,100,000 2,900,000
 Earnings 600,000 329,000
 9 Mo 1.85 .83
 Shr Ernd ...
 Revenue 26,800,000 5,300,000
 Earnings 2,200,000 650,000

a - Preliminary; Includes operations of Curran & Co., acquired from date of acquisition and also reflects results of a loss of \$600,000, or 34 cents a share, net of related tax effects, in the third quarter on a pipeline construction project; b - Restated to include operations of Muchowich Marine Service, Inc., acquired in October, 1968, on a pooling-of-interests basis.

If Honeywell disk packs aren't 100% error-free, then it don't snow in Minneapolis in the winter time.



We know a lot about the snow in Minneapolis.
We know a lot about disk packs too. After all, we're the "Other Computer Company."
So it's not surprising that our disk packs are so good.
We offer the flattest surfaces in the industry.
We've eliminated flagged tracks.
And every Honeywell disk pack is 100% error-free.
Anyone can use them. Because we have a full line that's compatible with any make of computer.
And we can deliver as soon as we get your order.
If you'd like to know more, call your local Honeywell Communications and Data Processing representative. Or our home office, collect, 617-235-7450, extension 531. We'll give you a disk pack you can count on.
Sure as little green apples.

The Other Computer Company:
Honeywell

Trade Shorts

Fimaco, Inc. has appointed Consolidated Software Inc. to handle the direct marketing and installation of the firm's Bocol computer language in 25 Western and Midwestern states.

Integrated Computer Systems Corp., a Dallas-based service bureau organization, has formed the ICS supply division, which will provide a "one source outlet" for data processing supplies and products throughout the Southwest.

Computer Communications, Inc., Inglewood, Calif., has entered a joint venture with Disk Research & Development Corp., Pa. Under terms of the agreement, CCI will direct the venture, called Computer Communications Magnetics, in the development and production of a

high-performance, fixed-head-per-track data disk, and DRDC will supply the venture with up to \$645,000 of funds over the next 12 to 18 months to pay CCI's expenses in the program.

A new corporate name, Banister Continental Corp., has been approved by shareholders of Continental Computer Associates, Inc., Edmonton, Alberta, Canada.

Logic Corp., Haddonfield, N.J., and Kanamatsu-Gosho (USA), Inc. have agreed to an exclusive licensing arrangement under which Kanamatsu-Gosho will have sole marketing rights to Logic Corp.'s LC-720 KeyDisc system and other future products in Japan.

Computer Usage Co., Inc., Greenwich, Conn., has licensed

the use of its proprietary computer system, Quip (questionnaire interpretive program), to Data Stations, Inc., New York.

Under the terms of the agreement, Data Stations will market Quip in the states of New York, California, and Michigan.

KDI Corp., Cincinnati, Ohio, has formed a computer products and systems group to serve the computer industry and computer users with subsystems, peripheral equipment (including remote terminals and input/output systems), programming, and software services.

Aerojet-General Corp. and Computer Time-Sharing Corp. have announced an agreement under which CTC will take over the commercial data processing operations of Aerojet's computing sciences division.

Orders and Installations

Bechtel Corp. has purchased a General Electric GE-635 to perform remote data processing for its offices and to do routine batch processing and time-sharing for its home office.

Sandia Laboratories of Albuquerque, N.M., has ordered an EMR Computer Co. 6130 system for a data acquisition application. The third-generation system includes 24,576 words of core memory, teletypewriters, card readers, line printer, disk, magnetic tape, and data communications controller.

Electronic Associates, Inc. of West Long Branch, N.J., has received a requisition for more than a million dollars worth of tire uniformity optimizing com-

puters from Akron Standard division of Eagle-Picher Industries, Inc., Akron, Ohio. These machines measure and correct small variations in the force a rolling tire exerts against the road. The computing system can detect variations that cannot otherwise be observed by visual or conventional mechanical inspection methods.

Faster customer service and sounder management information are basic aims of the Bay State Milling Co. in planning the installation of an NCR Century 100 at its Boston headquarters. Loading orders, shipping data, and product cost information will be handled by the system.

A second Univac 494 real-time system has been delivered to Keydata Corp. of Watertown, Mass., for its time-shared system for on-line business data processing. Keydata's business computer utility provides a wide range of services to manufacturers and distributors for real-time billing, inventory control, accounts receivable and payable, sales analysis, and other accounting and reporting procedures.

Computer Machinery Corp. has added Data World Corp. of Canoga Park, Calif., to the list of customers that will install a CMC-9 keyprocessing system to prepare data for input to computers.

Burroughs B500 computer systems have been ordered by: the First National Bank of Morristown, N.J.; the Golden State Bank of Bell Gardens, Calif.; the American Bank of St. Joseph, Mo.; and the Arlington Trust Co. of Arlington, Va.

The Banco de Cédulas Hipotecarias of Mexico City will expand its capabilities with the addition of an NCR Century 200.

Leader Data Processing of W. Hazelton, Pa., has taken delivery on an IBM 360/25 that will handle computer services, management consulting, and software development.

Univac 9200 systems have been purchased by Trunkline Gas Co. of Houston, Texas, Cleveland County, Shelby, N.C., and Economy Auto Stores, Atlanta, Ga. Wellesley College, Wellesley, Mass., has purchased a Univac 9300.

Sun Studs, Inc. of Roseburg, Ore., has received a General Electric GE-Pac 30 process computer and a Mark Century 120 numerical control system to automate its saw mill.

Honeywell Model 110 magnetic tape systems have been ordered by: Marquette Metal Products Co., Cleveland, Ohio; Murray Ohio Manufacturing Co., Nashville, Tenn.; Patchogue Plymouth Co., Hazelhurst, Ga.; Todd Shipyards Corp., New Orleans, La.; and Iowa Paint Manufacturing Co., Des Moines, Iowa.

Leigh Products Inc. of Coopersville, Mich., and Durant Digital Instruments of Milwaukee, Wis., have procured Honeywell Model 120 disk-oriented computer systems.

360 USERS: Service Bureaus Banks Institutions Corporations Accounting Firms NEW SOFTWARE PACKAGE

CAS 111

COMPUTER ACCOUNTING SYSTEM

The only totally integrated, third generation system that offers all accounting functions with • COMPLETE DOCUMENTATION • TOS OR DOS ENVIRONMENT • BATCH PROCESSING.

CAS III, designed by CPA's for users of IBM 25/30/40/50 equipment, solves the many problems found in manual accounting and record keeping procedures. Modular in design, the system functions equally well as an in house system or under Service Bureau conditions, reducing normal handling of information up to 75%.

The system permits simulation of basic hand recording methods, follows generally accepted accounting principles and procedures, provides an effective method of error control and audit trail, and supplies formalistic presentation of data without special preprinted forms.

Modular Design

The total system is modular, and independent groups of modules may be purchased to fit the users' program needs.

CAS III is programmed in BAL; requires a minimum configuration of 32K bytes of core in TOS or DOS environment.

Report Flexibility

Accounting reports headings, column designations, indentation, total levels, combining, scheduling, etc. are determined by the user, through input, to allow tailored report presentation. Ledgers require no fixed chart of accounts and allow 30 characters of alphabetic account description. The ledger offers a flexible code number structure. The user may employ a one to six digit code number along with sub-account designation. Subsidiary ledgers are reached through a special four digit code number.

Audit Features

All data enters the system through a journal or register and is automatically checked for arithmetic or posting errors. Errors are flagged and presented in an error analysis

report. Each journal has a debit and credit trial balance; is posted to the general ledger, balance forward or in detail by entry, including day, reference number, journal source, alphabetic description, amount, etc. This detail allows complete historic analysis upon request. A unique year-end file allows simultaneous processing of current and past year.

For Any Business

CAS III is adaptable to the needs of any size and type business: manufacturing, wholesaling, retailing, chains, franchising, banks, insurance, institutions, and services. System includes accounting Journals, General Ledger, Financial Statements, Government Reports, and financial reports needed for good management control. Program Manuals for set-up, operations and administration, including all needed forms, are furnished.

The Modules listed below may be purchased in one or more units, as needed:

PHASE I BASIC ACCOUNTING MODULE

- A. Journals
 1. Columnar Journal Format
 - a. Month, day, reference
 - b. Variable alphabetic description for payee, vendor, customer, etc.
 - c. Debit and credit trial balance
 - d. Variable journal and column headings
 - e. Cross foot error detection
- B. General Ledger
 1. Balance forward (or Historic, Phase I)
 2. Automatic calculation (tax percent, partnership, cost of goods sold, etc.)
 3. Automatic accrual posting (depreciation, insurance, taxes)
 4. Flexible Chart of Accounts
 - a. 1 to 6 digit code numbers (999-999)
 - b. 30 characters of Alpha for account titles
 5. Unique year-end file
 6. Year-to-date adjustment capability
 7. Current net change adjustments
- C. Formalistic Financial Statements (Profit and Loss statement, balance sheet, schedules)
 1. 8 1/2" x 11" (no account codes on statements)
 2. Upper and lower case print out and underlining available
 3. Variable statement headings
 4. 30 character account description
 5. Unlimited total levels
 6. Unlimited scheduling
 7. Unlimited consolidation of accounts
 8. Ratio and percentage analysis
 9. Current and year-to-date information

PHASE II ACCOUNT ANALYSIS MODULE

- A. Detail information for selected general ledger accounts are accumulated and produced upon request.

PHASE III STATEMENT CONSOLIDATION MODULE

- A. Allows consolidation of several individual businesses, divisions or departments.

PHASE IV BUDGETARY AND COMPARATIVE MODULE

- A. Budgetary financial reports.
- B. Comparative period financial statements

CAS III is the most important, singular advance in financial control software to become available to 360 users. Whether you need this program for your company or for a Service Bureau application, inquire now. Complete details will be sent to you immediately.

COM-Pac

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Minneapolis, Minnesota 55403
Phone 612 • 339 • 0271

PHASE V SUBSIDIARY LEDGER MODULE

- A. Employees earnings records.
- B. Job cost analysis.
- C. Accounts receivable.
- D. Accounts payable.

PHASE VI GOVERNMENT REPORTS MODULE

- A. All states, 941, W-2, 1099.
- B. Tip and meal calculation.
- C. Combined tax table (if used). (Format changes or requirements created by the government are covered by maintenance contract.)

PHASE VII ACCOUNTS RECEIVABLE MODULE

- A. Statements
 1. Standard format
 2. Automatic service charge
 3. Alphabetic and numeric invoice description
- B. Aged Analysis
 1. Current 30-60-90 days aging
 2. Year-to-date customer activity
 3. Sales analysis (salesmen, territory, department, etc.)

PHASE VIII TIME ANALYSIS MODULE

- A. Productive hour evaluation.
- B. Time distribution by labor category, and individual.
- C. Extensions at assigned rates.

CW Financial ON THE LIGHTER SIDE



"Cancel That Broom Closet Rental — We Got a Juicy Merger Offer Here!"



"One Bright Note, However — Earnings Are Running Considerably Ahead of the Third Quarter Last Year When We Weren't in Production Yet."



"Ours Is a Most Aggressive Acquisition Program ... Look ... There It Goes."

EDUCATION IN ADVANCED COMPUTING TECHNOLOGY BY PACE

PACE Computing Corporation announces a new curriculum in advanced computer technology. Eighteen courses will be offered in four important areas:

OPERATING SYSTEM/360: ADVANCED PROGRAMMING AND SYSTEMS ANALYSIS
OPERATING SYSTEM/360: INTERNAL SYSTEMS PROGRAMMING
OPERATIONS RESEARCH ANALYSIS AND OS/360 APPLICATION PROGRAMS
COMPUTER CENTER MANAGEMENT AND OPERATIONS

The curriculum provides intensive instruction designed to extend the knowledge and skills of experienced personnel in computer center management, analysis and programming. Courses are developed and presented by the PACE Technical Staff with support from remote terminal and "batch" OS/360 computing facilities.

Classes are two to five days duration with day or evening classes commencing October 6, 1969, held at the Marriott-Key Bridge of Arlington, Virginia, and the Watergate of Washington, D. C.

COURSES OFFERED OCTOBER AND NOVEMBER:
OPERATING SYSTEM/360 FACILITIES • JOB CONTROL LANGUAGE • ADVANCED COBOL PROGRAMMING • EXTENDED COBOL FACILITIES • ADVANCED FORTRAN PROGRAMMING • COMPUTER-BASED OPERATIONS RESEARCH • CURRENT TOPICS IN COMPUTER CENTER MANAGEMENT

Course counseling available to applicants.

FOR REGISTRATION AND COURSE INFORMATION, INQUIRE OF: J. L. STONE, Ph.D., PACE Education Center (703) JACKSON 7-8825.

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360/40

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729's

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1401 C6-16K w/4-729 md. 2 drives
1401 E6 w/2 1311 disk drives & 4-7330 tape drives. 1401 C3-4K

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1401 Systems wanted now; or will purchase now & lease back until you want to release your 1401 System.

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Will lease 360-30 at discount for lease time of 2 years. Will purchase I.O. equip.

SPECIAL ITEMS FOR SALE W/IBM M/A

1406 mdl. 01 (sn10696-A2)
(5) 729 mdl. 05 tape drives
(4) 7330 tape drives
2311 disk drives
Certified IBM 1316 disk packs with warranty

UNIT RECORD EQUIP. FOR SALE W/IBM M/A

026, 029 Key punches
082, 083, 084, 085, 088
402, 403, 407, 514, 519, 552, 602

IBM RECORD WANTED

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COMPUTERWORLD

See Page 32 for Details.

Tempo Computers Receives Contract For \$1,619,000 of Concentrators

ANAHEIM, Calif. — Tempo Computers, Inc. has received a contract totaling over \$1,619,000 from Call-A-Computer, Inc. for use with its Innovator 7000 time-sharing system.

The concentrators, which will be delivered over a one-year period starting in December of this year, utilize the Tempo I computer system and a communications interface to perform the concentrating function.

They will be used in various parts of the country, remotely located from the main time-share processor, to collect data from up to 48 terminal users each.

This allows them to serve not only printer-keyboard terminals, but also more sophisticated CRT

display devices. Call-A-Computer customers will have the opportunity to use a broader range of terminals than before.

\$2,642,000 for Comcet

ROCKVILLE, Md. — Information Network Corp. of Phoenix, Ariz., has placed an order for 40 computer communication systems from Comcet Inc. The order calls for 10 Comcet 40 systems, 10 Comcet 20 systems, and 20 Comcet 10 systems.

Valued at \$2,642,000, the Comcet communications processors will serve as the communications system for IBM 360 computers. Information Network Corp. provides 24-hour, unattended time-sharing service for a variety of remote keyboard user terminals.

Information and Communications Applications, Inc., a Silver Spring, Md., computer systems firm, has received a contract from the Department of Defense to implement a worldwide, on-line, data collection system that will permit storage and forwarding of the data in a multicomputer-based environment, with special features for data display and error correction. The hardware configuration for the system is from Univac, IBM, and Control Data.

The peripheral sciences division of Programming Sciences Corp. has been awarded a contract by Transistor Electronics Corp. of Minneapolis, Minn., to develop a software system supporting TEC's entry into the System/360 equipment market. De-

Contracts

veloped for TEC's 520 programmable communications processor, the system will enable TEC to attach its CRT units and other peripheral devices to a System/360 mainframe without modification to IBM software or the user's application.

Airborne computers and programs for the U.S. Navy's new carrier-based S-3A antisubmarine warfare aircraft will be developed by Sperry Rand Corp.'s Univac division for the Lockheed-California Co., which has been selected as prime contractor by the U.S. Naval Air Systems Command. The Univac 1832 general-purpose digital computers will be programmed to accept and process data from all sensors and display information on video-type screens for

viewing and use by the S-3A's four-man crews.

Ampex Corp. has received a contract totaling \$1.5 million to design and install a complete random-access, audio/video instructional system for Pima College, Tucson, Ariz. The new computer-controlled system features high-speed audio and video duplication technology that makes program material available to students almost immediately. A total of 128 different programs will be available for listening and viewing at the 112 accessing positions through an RF master antenna.

The U.S. Post Office Department has awarded Burroughs Corp. a \$4.9-million contract for continuing production and installation of letter-sorting machines used in the high-speed processing of mail. The contract calls for 39 letter sorters, the largest of which processes up to 277,000 pieces of mail during each eight hours of operation.

A classified go-ahead contract totaling more than \$3.5 million was awarded Cubic Corp. for production of airborne electronic subsystems for use on the Air Force's air-to-ground attack aircraft.

The Army's Computer Systems Command, Ft. Belvoir, Va., has contracted Cybermatics to conduct a feasibility study and evaluation of source data automation and data conversion techniques to support the requirements of the Army's Combat Service Support System. The study involves an analysis of various methods of data record conversion with the objective of determining the best methods of converting present records to machine-readable media and format.

Information Industries, Inc. of Wayne, Pa., will install computerized medical services in the 110-bed Ottawa Civic Hospital, through a five-year contract. The complete medical system will include not only all hospital administrative functions, but will extend to operating room and nurse scheduling, lab tests, statistical analysis, and the use of patient records in research and statistical studies.

Computer Corporation of America, Cambridge, Mass., has been awarded a contract by Bell Telephone Labs, Inc., for the modification of its CCA 104 information retrieval system that will be used to test computerized retrieval of listing for directory assistance (information) operators.

Micro Systems, Inc. has been awarded a contract in excess of \$1.5 million from Rydacom of Miami, Fla., for Micro 811 computer systems, a microprogrammed digital computer containing 16-bit registers, variable precision operations, and 85 instructions.

The Micro 811 will be part of a Rydacom data processing network that will provide on-line inventory control and order processing for a network of warehouses located throughout the U.S.



**Everyone told the ram,
"You can't...
punch a hole in that dam."**

They forgot that determination often makes
an impossible dream come true.

Like the ram, TSC's determined
computer professionals have produced a minor miracle
... a powerful, reliable time-sharing system
that costs less to use than any other. A system
featuring an unusually well-stocked program library
and strong, professional customer support. The
only time-sharing system offering **GUARANTEED ACCESS.**

Further pleasant details are as near as your phone.
(Just like our time-sharing system.)

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Total Service in the Computer Field: Software • Applications • Time-Sharing — and through its subsidiary,
Computer Environments Corporation: Management Seminars • In-Company Education • Computer Career Training

Computer Stocks Sag

Unbundling - Is It Good or Bad?

By A.B. Williams
CW Staff Writer

Since unbundling, IBM's stock has followed an interesting course. During the second week after the announcement, it hit 354, for a net gain of about 42 points. This was during a period when the overall market was rallying, but still essentially on the sick side.

Since the high point, IBM has gone down, losing 16 to 338. Perhaps investors, largely the institutions who can look at \$300 per share without some trepidation, have had second thoughts about unbundling, and seen possibilities that it does not represent unalloyed benefits.

Is It Good?

It certainly makes income centers out of former cost operations, such as systems engineering, new applications-type software, and a lot of field engineering.

In this respect, the income will far more than offset the token decrease in hardware prices.

The major beneficiary of the newly-priced services appears to be the smaller computers - System/3, 360/20 and 30, and 1130.

In competitive situations, a very key point of negotiation has been vendors' willingness to give away large chunks of systems and coding help.

The same logic could be applied to produce like answers in the areas of software and field engineering.

Is It Bad?

The very same bullish points can be reused to give a rather bearish outlook to unbundling.

At first glance, the creation of new profit centers out of old cost operations is good.

The fact that new umbrellas have been raised gives competition a major toe-hold.

This is particularly true in the systems engineering area.

IBM's stated prices must encourage competition, as their hardware prices (and profits) have in the past. Three percent off hardware shouldn't make the other manufacturers tremble with fear.

The systems engineering price schedule is something to behold. It's great for IBM as long as their salesmen can make the decades-old "package concept" stick.

At \$22 to \$35 per hour, a lot

of people will be encouraged to go out and compete.

What Can IBM Lose?

A number of IBM employees must have the same idea. It seems that IBM will keep supplying itself with competition, as it always has. Up to now, it's been largely hardware.

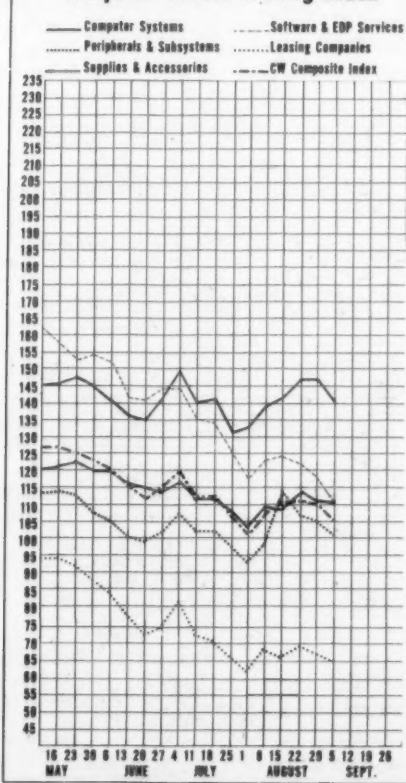
Intelligent conjecture says that IBM can lose market share. The two names that crop up most frequently are Univac and Honeywell, with a host of mini-manufacturers trailing along for an ever-increasing part of the ride.

These two companies have announced non-unbundling policies, which look healthy, at least as long as Internal Revenue doesn't force capitalization on all software writers.

Of the other major manufacturers, CDC has found its own niche, and Burroughs is doing an extremely competent technical job of playing cat-and-mouse with unbundling.

So it seems that the people who have the muscle to make IBM's price move may realize that unbundling is a two-edged sword.

Computer Stocks Trading Index



This announcement is neither an offer to sell nor a solicitation to buy any of these securities.

The offer is made only by the Offering Circular.

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C&S Shows Gains In Earnings And Revenues

LOS ANGELES - Computing and Software, Inc. has reported a substantial gain in earnings and revenues for the first nine months of its current fiscal year. C&S achieved earnings of 81 cents per share in the nine months ending July 31, 1969, representing a 62% increase over the 50 cents per share a year ago.

Concurrently, net income of \$2,840,000 was recorded on a sales volume of \$41,353,000, compared to net income of \$1,736,000 on a sales volume of \$35,564,000 in 1968.

All prior year figures are restated to include subsequent acquisitions on a pooling-of-interests basis.

"Our planned objectives for 1969 are on target, and management remains confident of meeting this year's goals," said President Norman E. Friedmann.

In his report to shareholders, Dr. Friedmann indicated that the corporation anticipates one of its principal sources of future business will be the combination of many current information processing capabilities, through the offering of a growing family of on-line and time-shared information products that utilize C&I data bases.

ADR Formally Acquires Programmatics, Inc.

PRINCETON, N.J. - Applied Data Research, Inc., a computer software and service company, has formally acquired Programmatics, Inc., a Los Angeles-based computer software company.

The acquisition was for an undisclosed amount of Applied Data Research common stock.

COMPUTER STOCKS: TRADING SUMMARY

COMPUTER SYSTEMS				WEEK NET		WEEK %	
EXCH	1969 RANGE	CLOSING PRICE		CHANGE		CHANGE	
N	153-128	147	BURROUGHS CORP	- 5 1/4		-3.45	
N	69-38	40 7/8	COLLINS RADIO	- 2 3/8		-5.58	
N	159-125	147	CONTROL DATA CORP	- 4 1/2		-2.97	
A	75-54	69 7/8	DIGITAL EQUIPMENT	- 3 7/8		-5.26	
N	25-13	15 3/8	ELECTRONIC ASSOC.	- 1		-6.11	
N	98-81	81 3/8	GENERAL ELECTRIC	- 2 1/8		-2.54	
N	95-75	90	HEWLETT-PACKARD CO	- 1 1/4		-1.27	
N	140-107	138 1/2	HONEYWELL INC	- 6 1/2		-4.74	
N	354-291	338	IBM	- 7		-2.00	
N	139-108	134 1/2	NCR	- 2		-1.61	
N	48-35	37 1/4	RCA				
N	50-30	35 3/4	RAYTHEON CO.	+ 3/8		+1.06	
O	43-24	27	SCI. CONTROL CORP.	- 2		-6.98	
N	55-38	42 1/8	SPERRY RAND	- 2 5/8		-5.87	
A	39-26	35 3/8	SYSTEMS ENG. LABS	- 2 5/8		-6.91	

PERIPHERALS & SUBSYSTEMS				WEEK NET		WEEK %	
EXCH	1969 RANGE	CLOSING PRICE		CHANGE		CHANGE	
N	82-59	73 5/8	ADDRESSOGRAPH-MULT	+ 3 1/2		4.99	
O	71-16	16 1/8	ALPHANUMERIC	- 1 1/2		-8.51	
N	44-32	40 7/8	ANPEX CORP	- 1 3/8		-3.25	
O	19-9	10 1/4	BOLT, BERANEK & NEW	- 1 1/2		-12.77	
N	17-9	10 5/8	BUNKER-RAMO	- 1 3/8		-11.46	
A	37-18	24	CALCOMP	+ 1/8		.52	
O	38-15	15	COGNITRONICS	- 2		-11.76	
A	16-8	8 5/8	COMPUTER EQUIPMENT	- 3/8		-4.17	
A	27-12	13 1/4	DATA PRODUCTS CORP	- 7/8		-6.19	
O	22-13	16	DIGITRONICS	- 1		-5.88	
N	62-0	58 1/2	ELECTRON MEMORIES	- 1 7/8		-3.11	
O	18-8	8 1/2	FABRI-TEK				
O	37-15	15	FARRINGTON MFG	- 2		-11.76	
O	21-10	11 1/2	INFORMATION DIS	- 1		-8.00	
A	34-17	24	MILGO ELECTRONICS	- 1 7/8		-7.25	
A	89-59	84 1/8	MOHAWK DATA SCI.	- 3 3/4		-4.27	
O	118-54	57	OPTICAL SCANNING	+ 1		1.79	
O	31-18	19	PHOTON	- 2 1/2		-11.63	
A	35-23	30 5/8	POTTER INSTRUMENT	+ 1/8		.41	
O	76-54	57 1/2	RECOGNITION EQUIP	- 5		-8.00	
N	61-20	24 3/8	SANDERS ASSOCIATES	- 2 1/2		-9.30	
O	85-32	34	SCAN DATA				
O	36-16	20	TALLY CORP.				
N	100-85	92 1/2	XEROX CORP	- 3 3/8		-3.52	

SUPPLIES & ACCESSORIES				WEEK NET		WEEK %	
EXCH	1969 RANGE	CLOSING PRICE		CHANGE		CHANGE	
O	47-31	35	ACME VISIBLE	- 1/2		-1.41	
N	22-11	12 1/8	ADAMS-MILLIS CORP	- 1/8		-1.02	
O	27-23	23 1/4	BALTIMORE BUS FORM				
A	29-17	19 7/8	BARRY WRIGHT	- 7/8		-4.22	
O	44-27	27 1/4	DATA DOCUMENTS	- 3/4		-2.68	
N	42-28	29 3/4	ENNIS BUS. FORMS	- 1/4		-.83	
N	94-65	66	MEMOREX	- 2 3/4		-3.03	
N	112-94	107 1/2	3M COMPANY	- 1/2		-.46	
O	37-29	34	MOORE BUS FORMS	+ 1 3/8		4.21	
N	47-36	44 1/4	NASHUA CORP.	- 1 1/4		-2.75	
O	48-30	38	REYNOLDS & REYNOLD	+ 1 1/2		4.11	
O	31-23	25	STANDARD REGISTER	+ 1/4		1.01	
N	36-27	27 5/8	UARCO	- 5/8		-2.21	
A	20-10	12	WABASH MAGNETICS	- 1/2		-4.00	
O	34-28	32 1/4	WALLACE BUS FORMS	+ 3/4		2.38	

SOFTWARE & EDP SERVICES				WEEK NET		WEEK %	
EXCH	1969 RANGE	CLOSING PRICE		CHANGE		CHANGE	
O	14-5	5 3/4	ADVANCED COMP TECH	- 1/4		-4.17	
A	19-6	24	APPLIED DATA RES	+ 1/2		2.13	
O	19-6	7 1/2	ARIES	- 1/2		-6.25	
A	83-63	81	AUTOMATIC DATA PROC	- 2		-2.41	
O	13-7	7 1/2	AUTO SCIENCES	+ 1/4		3.45	
O	17-7	7	BRANDON APPL SYS	- 1/2		-6.67	
A	21-9	11 3/4	COMPUTER APPL	+ 1/4		2.17	
O	16-6	8 1/2	COMPUTER ENVIRON	- 1		-10.53	
O	47-21	21	COMPUTER NETWORK	- 1 1/2		-6.67	
N	30-19	21	COMPUTER SCIENCES	- 5/8		-2.89	
O	48-8	8 3/4	COMPUTER USAGE	- 1/4		-2.78	
A	56-37	51 1/2	COMPUTING & SOFT	- 3 1/4		-5.94	
O	24-5	5 3/4	DATAMATION SERVICE	- 3/4		-11.54	
O	17-6	6 1/2	DATATAB	- 1		-13.33	
O	15-5	5 3/4	DIGITEK	+ 1/2		9.52	
A	38-12	12 1/2	ELECT COMP PROG	- 1 1/8		-8.26	
O	30-17	17 1/2	INFORMATICS	- 1 3/4		-9.09	
O	19-3	3 1/2	MATRIX CORP.	- 1		-22.22	
O	22-5	5 1/2	NAT COMP ANALYSTS	- 1 1/4		-18.52	
A	34-23	33 1/4	PLANNING RESEARCH	- 1/8		-.37	
O	11-6	6	PROGRAMMING & SYS				
O	10-5	5 1/2	SOFTWARE SYSTEMS	- 1 1/8		-21.43	
O	37-5	5	STRATEGIC SYS				
O	36-11	18	TBS COMP CENT INC.	+ 2		12.50	
O	12-4	4 1/4	UNITED DATA CENTER	- 1/4		-5.56	
O	155-56	67 3/8	UNIVERSITY COMP	- 3 7/8		-5.44	
O	38-22	24 1/2	URS SYSTEMS	- 1/2		-2.00	
O	16-7	8 3/4	U.S. TIME-SHARING				

LEASING COMPANIES				WEEK NET		WEEK %	
EXCH	1969 RANGE	CLOSING PRICE		CHANGE		CHANGE	
O	14-8	11	BANISTER CONTIN	- 1 1/4		-10.20	
O	45-24	27 3/4	BOOTH COMPUTER	- 1/4		-.89	
O	18-4	5	COMPUTER EXCHANGE	+ 1		25.00	
A	34-10	11 3/4	COMPUTER LEASING	+ 1 1/8		10.59	
O	12-7	8 1/8	CYBER-TRONICS	- 7/8		-9.72	
A	68-23	26 5/8	DATA PROC. F & G	- 2 1/8		-7.39	
O	16-6	6 1/2	DATRONIC RENTAL	- 1/4		-3.70	
A	52-29	29 1/4	DEARBORN COMPUTER	- 3 1/2		-10.69	
A	16-9	9 5/8	DPA, INC.				
A	45-16	19 1/8	GRANITE MGT	- 1 5/8		-7.83	
A	28-12	13	GREYHOUND COMPUTER	- 1		-7.14	
N	54-23	24	LEASCO DATA PROC.	- 1 7/8		-7.25	
O	9-4	4 3/4	LECTRO COMP LEAS				
A	57-24	25	LEVIN-TOWNSEND CMP	- 1 1/2		-5.66	
O	8-3	3 1/2	LHC DATA, INC.	- 1/4		-6.67	
O	14-3	3 7/8	MANAGEMENT ASSIST	- 1/8		-3.13	
O	12-6	6 1/8	NCC LEASING	- 7/8		-12.50	
A	43-18	35	RANDOLPH COMPUTER	+ 1/2		1.45	
O	34-6	6 1/2	SYSTEM CAPITAL				
A	28-13	15 1/8	U.S. LEASING				

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Boise Cascade Starts Computer Company

BOISE, Idaho — Boise Cascade Corp. has split off its data processing operations to form a new company — Boise Cascade Computing, Inc.

The company is projecting 1969 revenue of \$2.5 million, of which one-third is expected to

be derived from sales to others than the parent firm.

Ralph Hull, who heads up the operations, said Boise Cascade Computing "was created with the advantages of 150 highly trained, experienced people and a data processing center contain-

ing one of the finest hardware capabilities assembled."

The company has developed two conversion programs, Exodus I and II, that convert IBM 1410 and 1401 programs for IBM 360 operation.

"Our first conversion program put us in a third-generation computer operating environment years ahead of any other third-

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New Companies

generation user," Hull stated. "We have been in this advanced multiprogramming environment for a full three years."

Hull said the new company has another unusual capability. "We have married the traditional data processing function with the communication function, both voice and teleprocessing. This has allowed us to develop such programs as communication cost analysis, which can be used to advantage by any corporation that has scattered locations."

He added that he believes teleprocessing will replace voice communication as the major factor in transmittal of business information "within the next few years." In anticipation of this, BCCI operates teleprocessing terminals in five West Coast cities and Chicago.

Recently, two new services were put on the market. One, called Comit, computer operations management, information and training, is already successfully operating in several data processing installations, he said. Comit is designed to aid data processing with personnel development, input and output controls, operating controls, documentation and scheduling of computer operations.

The other, CVM, catalog and volume table of contents maintenance, is designed to be used in conjunction with the IBM 360 operating system. It provides data and efficiencies not provided by the manufacturer's software, he said. This system has been test-marketed and is installed both in the East and the West.

A national marketing network is being built with sales offices already located throughout the West. Headquarters office of Boise Cascade Computing will remain at 1003-1/2 Main Street, Boise, Idaho.

Other New Companies

Formation of I/O Devices, Inc., Montville, N.J., has been announced by Ludwig J. Kapp, president. I/O Devices has offices and laboratory facilities at 9 Skyline Drive. An assembly facility on an adjacent site is presently in the planning state.

Kapp said I/O Devices was established "to meet an obvious need for the development of electronic high-speed serial impact printing devices to be used with data terminals or other data processing or process control applications."

He indicated that research efforts would also be pointed toward the development of other advanced input-output devices.



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Two Elected Vice-Presidents at IBM

ARMONK, N.Y. — Dr. Arthur G. Anderson and Theodore C. Papes Jr., have been elected vice-presidents of IBM. Anderson will continue to hold his current position of IBM director of research. He directs the company's research division, which conducts basic research and develops advanced information-handling concepts and technologies.

He is responsible for IBM's research laboratories in Yorktown, N.Y., San Jose, Calif., New York City, and Zurich, Switzerland.

Anderson joined IBM in 1951 as a technical engineer in the company's Poughkeepsie, N.Y., laboratory and has since held a variety of research and managerial positions.

Anderson was director of IBM's San Jose research labora-



A.G. Anderson



T.C. Papes Jr.

Executive Corner

tory prior to his promotion to IBM director of research in June, 1967.

He received a Ph.D. degree in physics from New York University in 1958.

Papes continues in his position as assistant general manager, operations, data processing group.

Papes joined the company in 1952 as a sales representative in Detroit and rose to branch manager in 1959.

In 1966, he became group director of finance for the newly formed data processing group. He held that position until 1968 when he became assistant general manager, operations, for the DP group.

Vosatka Named President Of Varian Data Machines

PALO ALTO, Calif. — George J. Vosatka has been named president of Varian Data Machines, Varian's digital computer company in Irvine, Calif. Prior to joining Varian, he was vice-president, marketing, of Univac's data processing division.

During Vosatka's 16 years in the computer field, he has held responsible positions in general and technical management, marketing, and sales management.

In the course of his career, he has directed hardware sales and software development organizations, directed large technical staffs, and participated in computer management studies for major corporations.

Prior to joining Univac in 1967, he was vice-president, marketing, for Informatics. Earlier, he was vice-president and manager for western operations of Computer Usage Co., Inc. and western regional manager for the Bendix computer division.

Other Recent Moves

□ Robert B. Anderson, former secretary of the treasury, has been elected to the board of directors of Planning Research Corp. of Los Angeles. Anderson served as secretary of the treasury, deputy secretary of defense, and secretary of the Navy during the Eisenhower administration.

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• Computerworld FJCC Show Issue
Issue Date - Nov. 19, 1989
Adv. Closing Date - Nov. 7, 1989
This issue will be read at the Joint.

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Issue Date	Adv. Closing Date
Sept. 24	Sept. 12
Oct. 1	Sept. 19
Oct. 8	Sept. 26
Oct. 15	Oct. 3
Oct. 22	Oct. 10

Issue Date	Adv. Closing Date
Oct. 29	Oct. 17
Nov. 5	Oct. 24
Nov. 12	
FJCC Preview	Oct. 31, 1989
Nov. 19	
FJCC Show	Nov. 7, 1989

For further information contact your nearest Computerworld sales office or call Neal Wilder, Computerworld (617) 332-5606.

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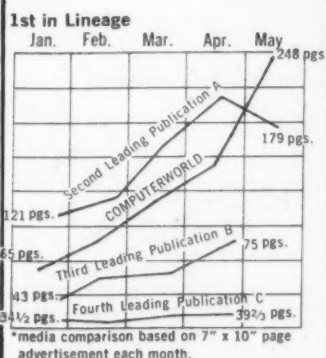
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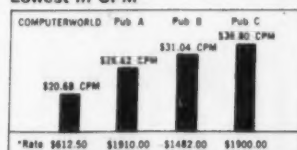
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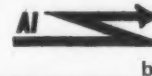
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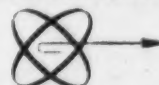
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